

The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera: Erebiidae: Arctiinae: Arctiini)

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Abstract: Species in the genus *Spilosoma* Curtis, 1825 from New Guinea and adjacent islands are revised. Species groups are recognized primarily according to similarities in genitalia structures and secondarily to other external characters. The genus *Spilosoma* is in New Guinea and adjacent islands represented by 27 species of which 10 are new to science: *Spilosoma adriani* sp. nov., *S. cinnamomea* sp. nov., *S. enarotali* sp. nov., *S. grandimacula* sp. nov., *S. mastrigti* sp. nov., *S. nana* sp. nov., *S. postbrunnea* sp. nov., *S. transversa* sp. nov., *S. vulgaris* sp. nov., *S. wernerthomasi* sp. nov. *Diacrisia eichhorni* Rothschild, 1917 proved to be conspecific with *Diacrisia pratti* Bethune-Baker, 1904 and is downgraded to subspecies level. In the closely related *Spilaethalida* Dubatolov et al., 2007 the taxa *Diacrisia sordidior* Rothschild, 1910, *Diacrisia montana* Rothschild, 1910, *Diacrisia alpina* Rothschild, 1914 and *Diacrisia woodlarkiana* Rothschild, 1910 are synonymized with the nomotypical subspecies of *Diacrisia turbida* Butler, 1882. All species are described or redescribed and imagines and male and female genitalia are figured.

Key words: revision, *Spilosoma*, *Spilarctia*, Arctiidae, Lepidoptera, species groups, Papua.

Introduction

Species of the supergenus *Spilosoma* Curtis, 1825 occur almost in every faunal region in the world and are in the majority recognizable by the wing shape and wing pattern of black dots and lines. Various attempts have been made to arrange this certainly paraphyletic group into presumed monophyletic smaller species groups and (sub) genera. A recent and comprehensive classification of the group has been made by Kôda (1988) but in his work it becomes clear that the classification is not at all easy and in many cases is even doubtful. The great variety of genitalia structures in *Spilosoma* s. l. shows that the genus probably is highly paraphyletic since the recognized genera and species groups arranged by Kôda (1988) do not show a satisfactory classification. Moreover, according to Kôda *Spilosoma* s. s. and *Spilarctia* Butler, 1875 are distinct genera but the genitalia of both species do indicate that they are congeneric which would consequently make *Spilarctia* Butler, 1875 a junior synonym of *Spilosoma* Curtis, 1825. The extremely

diverse wing shape and wing pattern in *Spilarctia* recognized by Kôda (1988) makes it hard to believe the reliability of his classification. Still, many authors use the taxon *Spilosoma* for Holarctic groups of species (including the type species *Bombyx menthastri* [Denis et Schiffermüller], 1775 = *Phalaena lubricipeda* Linnaeus, 1758) and *Spilarctia* Butler, 1875 for the Indo-Australian groups of species with the Palaearctic *Phalaena lutea* Hufnagel, 1766 as the type species. Most species in Indo-Australia have modified genitalia in comparison with those of Palaearctic *Spilosoma*. Male genitalia of *Spilosoma* s. s. show rather small and simplified compact valves while most species in the Indo-Australian region have more elongate valves, usually with distinct processes and extensions. *Spilosoma* s. s. as well as the Indo-Australian species almost without exception have a distinct carinal plate with carinae (teeth or thorns). Fields of scobination and small cornutal spines on the vesica lobes are present in both groups.

Without doubt indeed smaller monophyletic groups of species can be recognized. The revision



of *Lemyra* Walker, 1856 (Thomas 1990b) and recognition of *Spilaethalida* (Dubatolov et al. 2007) and *Nicetosoma* (Vos 2011) are probably justified and convincing. However, one may doubt the need of the long list of recently described genera in *Spilosoma* s. l., like *Tamilarctia*, *Defreinarctia* and *Orhantarctia* (Dubatolov, Kishida 2005), *Hollowayana* (Dubatolov, Kishida 2006), etcetera, for the same reason as discussed for Kôda (1988). Defining such groups and considering them to be distinct (new) genera is by far not easy and seems not always justified by external characters alone. Not all characters, in genitalia and wing pattern, seem to support separating these groups at genus level. It should therefore be wise to restrain the production of other genera within *Spilosoma* and restrict at most to species groups until molecular biological research reveals more prove for division of (sub) genera.

In this revision of the *Spilosoma* species group of New Guinea we include *Spilaethalida* because of its presumed close relation with the other taxa in this group. We exclude however the genera *Lemyra* Walker, 1856 and *Nicetosoma* De Vos, 2011 which are recently revised comprehensively. '*Diacrisia*' *hampsoni* Joicey et Talbot, 1916 is also excluded from this revision and occupies a peculiar position. Its wing pattern is very different from all other Spilosomini, more like a species from the genus *Arctia* Schrank, 1802, but in its genitalia it resembles the Palaearctic *Spilosoma*. This species will be discussed by Dr. Wolfgang Speidel and Dr. Thomas Witt in the near future (pers. comm.).

Abbreviations used

FWL – Forewing length (measured from wingbase to apex);

mm – millimeters;

PNG – Papua New Guinea.

BMNH – Natural History Museum (former British Museum for Natural History, London, United Kingdom);

CMWM – collection Thomas Witt, München (assigned to Zoologische Staatssammlung München, Germany);

KSP – Kelompok Serangga Papua (collection of Br. Henk van Mastrigt, Jayapura, Papua, Indonesia);

RMNH – NCB Naturalis, Netherlands Centre for Biodiversity (former Rijksmuseum voor Natuurlijke Historie and Nationaal Natuurhistorisch Museum), Leiden, The Netherlands;

ZMAN – NCB Naturalis, Netherlands Centre for Biodiversity (former Zoölogisch Museum van Amsterdam),

The Netherlands;

ZSM – Zoologische Staatssammlung München, Germany.

Species groups

Study of the genitalia shows that some of the species are distinctly related to each other, others show such differences that they are difficult to place but according to the wingpattern they seem to belong to certain groups. It is therefore arbitrary to make a division by external characters (including genitalia) alone. A thorough molecular study is therefore necessary to reveal the true relation between the species in this supergenus. However, an attempt is made to arrange the species in possible monophyletic groups judged primarily by the male and female genitalia and secondarily by the wing pattern. The remaining large *dinawa* group is probably not entirely monophyletic but a more precise subdivision is not possible at the moment.

Descriptions

Spilosoma Curtis, 1825

Type species: *Bombyx menthastris* [Denis et Schiffermüller], 1775 [= *Phalaena lubricipeda* Linnaeus, 1758]

dinawa group

This species group is probably not entirely monophyletic but for the time being it groups together the species which have important characters in common. The most distinctive features in the *dinawa* group are the development of the valva processes and the structure of the vesica and carinal plate in the aedeagus but even with these features the group can be divided in several subgroups. Five species clearly form a monophyletic subgroup: *Spilosoma alberti*, *S. dinawa*, *S. kebea*, *S. rubribasis* and *S. vulgaris*. The valva processes of these species are prominent with a long finger-shaped process on the sacculus. Such a long process is also present in *S. owgarra* but the apex of the valva and the wing pattern is quite different. *Spilosoma kebea* and *S. vulgaris* are definitely closely related since the female genitalia of both species are the only ones to have two distinct signa. *Spilosoma adriani* and *S. pratti* are probably closely related judged by the wing shape and pattern and the general male genitalia construction but both species also each show unique characters in the genitalia. Finally,



Spilosoma biagi and *S. cinnamomea* show unique features in both pattern and genitalia and do not fit easily into any of the other subgroups but still do probably belong to the *dinawa* group.

Spilosoma pratti is the only one occurring outside New Guinea from the mentioned species of the *dinawa* group, subspecies *eichhorni* is found on Goodenough Island (D'Entrecasteaux Islands). An undescribed species from outside New Guinea which probably also belongs to the *dinawa* group is found on Seram (J.D.Holloway, personal comm.) but its status needs confirmation by genitalia research. But it is possible that the *dinawa* group reaches out much more to the West. A couple of undescribed species from Timor, The Philippines, Sulawesi and even Sumatra (in CMWM and BMNH collections) have similar wing pattern like the *dinawa* species group. The position of these species needs further research.

***Spilosoma adriani* sp. nov.** (Plate 144 figs 5-6; Plate 58, figs 1a-c)

Holotype ♂ CMWM: INDONESIA: Indonesia, Papua, Nabire region, 600-900 m, i.2004, leg. S. Jakl.

Derivatio nominis: The species is named in honour of the father of the first author, Adrianus Cornelis de Vos, who was the initiator of the author's career and died in 2008.

Diagnosis: A large species with conspicuous stretched wings. Forewings with oblique greenish-brown postmedial band crossed by pale veins. Male genitalia sacculus with sharp process and with two large rounded lobes, carinal plate with one large thorn.

Description: Fwl. ♂ 28.3 mm. A large species with a strong appearance. The species is related to *Spilosoma pratti* (Bethune-Baker, 1904). Antenna strongly bipectinate, black. Head and thorax pale brown, palpi black. Ventral side of the head with red and white hairs. Thorax with black dorsal streak, ventrally white with red hairs, legs black but femur of hindleg yellow. Abdomen orange-red with lateral and dorsal black stripe. Forewing elongated, rather narrow. Ground colour yellow-brown, suffused with darker greenish brown at dorsum and running towards the apex but not reaching it, at the innerside of this oblique band faintly edged with chocolate brown. Veins crossing this brown band are yellow-brown like the ground colour. A faint square greenish brown coloured discal spot in the cell. In the submarginal field the veins with small black double spots (in fact one spot, crossed and therefore split by each vein). A short oblique row of about six black

marginal spots. Fringes yellow. Hindwing pale yellow with the veins and fringes darker yellow. A prominent large black discal spot and a slightly sinuous row of black submarginal spots, almost confluent except for the isolated tornal spots. Underside of forewing orange fading to pale yellow towards margin. Black median spot strong, grey-black oblique postmedial band undulated and incomplete, crossed by pale veins. Small black marginal spots and tiny submarginal double spots present. Hindwings underside yellow with darker yellow veins. Black median spot strong, submarginal spots as on upperside. Male genitalia: (prep. RV 1248) Uncus long, beak-shaped and stretched. Tegumen long, almost rectangular. Juxta trapezium-shaped, only slightly indented at the top. Valva long and stretched, at the costa halfway a thornlike process which is folded to the inside, apex of costa narrow and bend down. At the end of the sacculus a sharp process, angled 90° with the valve, followed by two broad rounded lobes. Aedeagus distally curved at an angle of 45°. One rather large carina as a thorn present. Vesica with base scobinated with tiny chitine drops and dorso-lateral at the right side with a broad band of numerous cornuti, ventrally again scobinated with tiny chitine drops.

Sexual dimorphism: Female unknown.

Distribution: Only known by the holotype. It was found at 600-900 meters, so it probably prefers moderate altitudes.

***Spilosoma alberti* (Rothschild, 1914)** (Plate 45, figs 1-4; Plate 58, figs 2a-c; Plate 72, figs 1a-b)
Diacrisia meeki Rothschild (1910: 144) nec Druce (1899), homonym

Spilosoma meeki: Hampson (1920: 404) incorrect spelling

Diacrisia alberti Rothschild (1914: 246) renamed
Diacrisia alberti: Strand (1919: 168)

Lectotype *Diacrisia meeki* ♂ BMNH [designated from syntypes]: British New Guinea, Angabunga River, affl. of St. Joseph River, upwards, 6000 ft, xi.1904-ii.1905, leg. A.S. Meek.

Paralectotypes 20♂♂, 1♀ BMNH [designated from syntypes]: PAPUA NEW GUINEA: same locality as holotype and British New Guinea, Biagi, Mamberé River, 5000 ft, i-iv.1906, leg. A.S. Meek.

Diagnosis: A large species with broad wings. Transverse lines and discal spot on forewing usually obscure and reddish brown. Postmedial line zigzagging. Male genitalia with vinculum wide, process on sacculus long and thick, carinal plate with blunt and sharp teeth grouped.



Description: Fwl. ♂ 24.9-28.0 mm., ♀ 32.0 mm. A large and variable species. Antenna ochreous brown, rather long bipectinated. Typical males with the head pale brown with frons black. Thorax darker brown, without black markings, ventrally sand-yellow mixed with rose-red and black. Legs with hairy femur sand-yellow and red, tibia and tarsi black. Abdomen orange-red with black lateral and dorsal spots which are often confluent forming a rather broad dorsal stripe, underside of abdomen sand-yellow without markings. Forewing with groundcolour ochreous brown, often sprinkled with dark brown scales. There is some variation in the intensity of the dark markings and the sprinkling of brown scales on the forewings. Transverse lines reddish brown, the antemedial line strongly zigzagging from costa running to dorsum but not reaching it, line sometimes broken in parts. Median line oblique and slightly 'S'-shaped, running from costa to dorsum and usually complete. Both lines and postmedial costal spots darker, sometimes even black. Distinct reddish brown discal spot in the cell. A postmedial row of brownish spots, submarginal spots usually present and dark brown to black. Fringes orange-brown. Hindwing orange with basally more rose-red, fringes darker orange. A large black discal spot which is variable in shape. Specimens with reduced black markings have about 3-4 black submarginal spots, while specimens with extended black markings can have 5-8 submarginal spots which could partly be confluent. Underside of forewing with basal two-third rose-red bordered by a strong black postmedial oblique band which is not reaching costa nor dorsum. This band crossed by orange veins. Submarginal part of forewing pale yellow with a row of small black submarginal spots. Hindwing as upperside but spots more pronounced with black. Male genitalia: (prep. RV 1125, RV 1128, BM 3810) Uncus beak-shaped, slightly arched with down bend sharp apex. Juxta more or less rectangular with a 'V'-shaped upper rim. Valva both symmetrical, distal part curved inwards. Costa of cucullus with an elongated bowl-shaped expansion and continued with a strongly wrinkled or folded rim towards apex. At the end of the sacculus with a long finger-shaped flattened process with rounded apex, pointing inwards. Vinculum 'V'-shaped. Aedeagus slightly curved, coecum slightly curved upwards. Carinal plate with a row of small teeth with the two distal teeth being larger, accompanied by a group of tiny teeth. Vesica with dorsal lobe dorso-distally with a field of tiny cornuti and smaller chitine drops. Ventral lobe ventro-caudally with a field of small cornuti, ventrally scobinated.

Female with brown head and thorax. Antenna grey-white, serrate. Abdomen pale rose-red with large black dorsal spots, often confluent forming a dorsal band. Forewing with groundcolour reddish brown. Dark brown transverse lines weak, dark brown discal spot large and often confluent with outer transverse line. Postmedial and submarginal spots hardly visible but a few are present, in apical area more distinct, blackish. Hindwing pale rose-red. Large black discal spot present, black submarginal spots much smaller in an incomplete slightly sinuous row. The presence and intensity of the black markings can vary. Female genitalia: (prep. BM 6298, BM 6302) Ostium wide with the narrow lip-shaped lamella postvaginalis sclerotized and the lamella antevaginalis with a shallow 'V'-shaped ostium rim. Antrum short, strongly sclerotized as is the cervix bursae, which is almost circular curled. Ductus bursae very short with the globular bursa copulatrix without any trace of a signum.

Distribution: Widely distributed and rather common in New Guinea in the Central Mountain Range from Paniai (Indonesia) in the West to Wau (Papua New Guinea) in the East. The species is found at higher altitudes from 1200-2150 meters. Two male specimens from Woodlark Island [CMWM] resemble this species, but probably belong to another, which should be investigated. Females are rarely found. Probably they are not attracted to light.

***Spilosoma biagi* (Bethune-Baker, 1908)** (Plate 45, figs 5-8; Plate 46, figs 1-4; Plate 59, figs 1a-c; Plate 72, figs 2a-b)

Diacrisia biagi Bethune-Baker (1908: 190); Rothschild (1910: 145)

Diacrisia biagi biagi: Rothschild (1914: 246); Strand (1919: 170)

Spilosoma biagi: Hampson (1920: 377)

Diacrisia biagi elongata Rothschild (1914: 246); Strand (1919: 170) **syn. nov.**

Spilosoma biagi elongata: Thomas (1990a: 183)

Diacrisia biagi angiana Joicey et Talbot (1915: 375)

Diacrisia biagi f. *angiana*: Joicey et Talbot (1916: 84)

Diacrisia nigricornis Joicey et Talbot (1916: 84) **syn. nov.**

Spilosoma nigricornis: Hampson (1920: 378)

Holotype *Spilosoma biagi* ♂ BMNH: PAPUA NEW GUINEA: British New Guinea, Biagi, Mambaré River, 1500 ft, iii.1906, leg. A.S. Meek.

Lectotype *Diacrisia biagi elongata* ♂ BMNH [designated by Thomas (1990a)]: INDONESIA: Dutch New Guinea, Ninay Valley, Central Arfak Mts., 3500 ft, xi.1908-i.1909. Paralectotypes *Diacrisia biagi elongata* 4♂♂ BMNH:



INDONESIA: same as lectotype.

Holotype *Diacrisia nigricorna* ♂ BMNH: INDONESIA: Dutch New Guinea, Wandammen Mts., 3000-4000 ft, xi.1914, leg. A.C. & F. Pratt.

Holotype *Diacrisia biagi angiana* ♂ BMNH: INDONESIA: H.T., North New Guinea, Angi [= Anggi] Lakes, Arfak Mts., 6000 ft, i-ii.1914, leg. A.C. & F. Pratt.

Paratypes *Diacrisia biagi angiana* 10♂♂ BMNH: INDONESIA: same as holotype.

Diagnosis: A medium sized species. The rows of black double spots on the buff forewings and the yellow hindwings are characteristic for the species. Cucullus in male genitalia with a spoon-shaped apical process, carinal plate with three sharp teeth and some tiny ones.

Description: Fwl. ♂ 20.6-22.5 mm., ♀ 26.0 mm. An extremely variable species which resulted in the synonymy as listed above. Head dorsally pale brown to sand coloured, frons and ventrally black. Labial palpi black, antenna brown with the flagellum in the middle dorsally black, in male bipectinate, in female filiform. Thorax pale grey-brown, dorsally with a broad black band, ventrally the prothorax for the greater part orange-brown with black hairs caudally and laterally. Meso- and metathorax black or mixed with pale sand-yellow hairs. Legs black. Patagia distally sometimes edged with dark yellow. Abdomen yellow to orange-yellow, in female dark yellow to rose-red, with lateral and dorsal black markings, in male usually forming a thin and faint dorsal stripe, in female with prominent dorsal dots. Underside of abdomen sand-yellow with ventro-lateral dots. Forewing grey-brown or buff with yellow fringes. Black spots and patches very prominent and often with some pale edging. Pattern extremely variable (see below). In the nomotypical form with many smaller dots and patches. At dorsum with three larger double spots antemedially, medial and postmedially. Furthermore four irregular shaped patches from cell to apex. A row of medial, postmedial and submarginal double spots. Hindwings yellow with a large discal spot and in the nomotypical form a more or less complete submarginal band of confluent spots, but in many forms this band is scattered into irregular patches. Underside of both wing pairs yellow with a similar pattern as upper-side. Male genitalia: (prep. RV 1160, BM 3811) The uncus beak-shaped and arched, but dorsally flattened with a sharp bend down apex. Juxta with a broad circular basal part, the distal half triangular with a broad 'V'-shaped rim. Valve narrow, cucullus with a straight costa and with a rounded spoon-shaped apical process. At the end of the sacculus

a broad finger-shaped process with rounded apex, pointing outwards at an angle of 45° with the apical process of the cucullus. Vinculum shallow and rounded. Aedeagus slightly curved with distal part broadened with a large carinal plate with one small and three larger conical teeth in a row, guided by some tiny teeth. Vesica distally with a field of tiny cornuti.

Female with much broader forewings than male. Forewing pale grey-brown, crossed by paler veins, with rows of pale ringed black markings. In typical patterned specimens (variations are described below) there are black antemedial spots, sometimes on a dark yellow antemedial line, at least two large black spots in the cell, a slightly 'S'-curved complete row of fasciate spots, often escorted by a dark yellow fasciate line, next to a complete row of smaller postmedial spots and finally an interrupted row of small and often twinned submarginal spots. Marginal spots usually present in all variations. Fringes pale brown to yellow. Hindwing yellow, in some females with a rose-red base, with a prominent black discal spot always present. In typical specimens the black submarginal band of patches and spots is almost confluent but crossed by the yellow veins. Some postmedial spots may be present as well as marginal spots. Female genitalia: (prep. RV 1324) Ostium wide and narrow. Lamella postvaginalis sclerotized and apically slightly concave. Lamella antevaginalis with ostium rim shallow 'V'-shaped. Lamella antevaginalis broad and almost rectangular. Sclerotized antrum broad and flattened with cervix bursae also sclerotized and curled into a broad trunk with a large appendix bursa. Appendix bursa basally long and narrow with a globular distal part. Bursa copulatrix about as long as appendix bursa but oval shaped. No signum present.

Variation: The black spots on the fore- and hindwing are subject to extreme variation which many authors tempted to describe the races listed above. These races were sometimes described after just one or a few specimens, while other variations from the same locality were ignored. Now more material becomes available we can conclude that these concern nothing less than geographical variations and in some cases even aberrations.

The phenotype with black antenna (in fact just an extension of the black on the flagellum), known as f. *nigricorna* Joicey et Talbot, 1916, has more or less typical patterned wings, in some specimens only the antemedial row of dots is reduced. In f. *elongata* Rothschild, 1914, the spots on both, fore- and hindwing, are elongated. This feature is not



just restricted to the Arfak Mountains, although it is never seen so strong than at this locality, where also typical patterned specimens occur. In f. *angiana* Joicey et Talbot, 1915, The specimens are somewhat larger and paler and many dots are reduced except for some strong dots at the costa and dorsum. There are also specimens known with even more reduced dots, like in a female (ZMAN) from Mabilabol (Star Mountains), with only some tiny spots left in the apex and margin and on the right forewing two small spots on the dorsum, thus being asymmetrically. One male (BMNH) from Woodlark Island off the coast of East Papua New Guinea has the black pattern on the hindwing much more extended, forming a large black triangle below the discal spot, while the forewings are typically patterned. This illustrates how easily variations occur. It is therefore not justified to consider these variations to be subspecies.

Distribution: The species is widely distributed in New Guinea from the Arfak Mountains (Birds-head Peninsula, Indonesia) in the West to the Milne Bay and Woodlark Island in the East (Papua New Guinea). It seems to prefer mountainous areas (up to 2100 meters) where it can be locally common, but it has also been found in lowland areas.

***Spilosoma cinnamomea* sp. nov.** (Plate 46, figs 5-6; Plate 59, figs 2a-c)

Holotype ♂ CMWM: PAPUA NEW GUINEA: Papua New Guinea, Morobe District, Patianda Watut, 1700 m, vi.1987, coll. W. Thomas.

Derivatio nominis: The species name refers to the cinnamon coloured forewings.

Diagnosis: The cinnamon coloured practically unmarked forewings with orange- to rose-red hindwings are diagnostic. Cucullus in male genitalia apically with a triangular inwards folded flap, valvae apex with rounded protuberance, short conical thorns on carinal plate.

Description: Fwl. ♂ 24.1 mm. A rather large species, though only the male holotype is known. Antenna brown with long bipectination. Head and patagia sandy coloured. Palpae and underside of head black. Thorax orange-brown, underside dark chocolate brown, but metathorax with sand-yellow hairs. Abdomen rose-red with an incomplete row of black dorsal and lateral dots, most intensive distally, at underside sand-yellow. Forewing almost unicolorous cinnamon brown. A faint darker stigma spot is visible at the end of the cell. In the apical area of the margin some tiny black spots are present. Fringes rose-red. Hindwing rose-red fading to

orange towards the margin. A large median black spot and a row of irregular sized postmedial black spots running from apex to tornus in a straight line. Underside of both wing pairs orange with centrally rose-red coloration, on the forewings more extended than on hindwing. Underside forewing with black discal spot, a black streak in the middle of dorsum and a black postmedial band which is not reaching costa nor dorsum. A row of very fine submarginal spots on each vein is present. Underside hindwing with a large black discal spot and a spot at the costa, furthermore with an incomplete row of postmedial patches (three in holotype). At dorsum with a faint blackish streak. Male genitalia: (prep. RV 1246) Uncus broadly beak-shaped, dorsally flattened and with a sharp bend down apex. Juxta at base broadly heart-shaped, distal half rectangular with a strong 'V'-shaped distal rim. Both valva symmetrically. Costa of cucullus strongly folded and slightly curved, distally extended in a broad and rounded inwards folded triangular flap. Apex of cucullus curled into a rounded protuberance. At the end of the sacculus a rather long and broad finger-shaped process at a 90° angle with the valve. Aedeagus slightly curved with distal part broadened, almost trumpet-shaped. Carinae as two tooth-shaped folds at the inner edge of the carinal plate. Vesica with dorsal lobe dorsally covered with numerous strong cornuti, ventral lobe with a narrow band of cornuti.

Sexual dimorphism: Female unknown.

Distribution: The only known specimen is from the Morobe Province in Papua New Guinea. It probably prefers mountainous areas (the holotype is collected at 1700 meters) and obviously has a very local distribution.

***Spilosoma dinawa* (Bethune-Baker, 1904)** (Plate 46, figs 7-8; Plate 47, figs 1-4; Plate 60, figs 1a-c; Plate 72, figs 3a-b)

Diacrisia dinawa Bethune-Baker (1904: 413); Rothschild (1910: 144); Strand (1919: 176)

Diacrisia dinawa: sensu Rothschild (1914: 246) incorrect spelling

Spilosoma dinawa: sensu Hampson (1920: 403)

Diacrisia ochrifrons Joicey et Talbot (1917: 50) **syn. nov.**

Spilosoma ochrifrons: Hampson (1920: 403)

Lectotype *Spilosoma dinawa* ♂ BMNH [designated here from syntype series]: PAPUA NEW GUINEA: British New Guinea, Dinawa, 4000 ft, v-vii.1902 ['August' in publication], leg. A.E. Pratt.

Paralectotype *Spilosoma dinawa* 1♂ BMNH [designated here from syntype series]: PAPUA NEW GUINEA: British New Guinea, Upper Aroa River, iii.1903, leg. A.S.



Meek.

Holotype *Spilosoma ochrifrons* ♂ BMNH [in original publication as ♀]: INDONESIA: Dutch New Guinea, Wandammen Mts., 3000-4000 ft, xi.1914, leg. A., C. & F. Pratt.

Diagnosis: Forewings with brown transverse bands or rows of patches crossed by pale veins. A complete row of dark marginal spots present. Vinculum wide, process on sacculus long and thick, carinal plate with one spatula-shaped tooth and a few sharp teeth.

Description: FwL ♂ 24.5-27.3 mm, ♀ 32.4-34.8 mm. Males of the typical form with head and thorax dark grey-brown, palpaе and underside of head and legs dark grey-brown, tegulae almost always with a black spot and the thorax with a black dorsal stripe. Underside of prothorax dark brown, meso- and metathorax sand-yellow and rose-red with dark brown pattern. Antenna black and short bipectinate. Abdomen dorsally rose-red to orange-red with lateral and dorsal black spots, dorsally often confluent forming a continued stripe. At underside the abdomen is pale sand-yellow with some ventro-lateral black spots on the middle segments. Forewing rather broad with a straight termen. The general pattern in all colour forms is formed by the black rows of patches and spots and the pale sandy coloured costa. This pale costa is crossed by four distinct black patches: a broad and longitudinal subbasal patch, a small almost square antemedial and median patch and finally an usually triangular submarginal patch. The wingbase with a tiny black spot. The forewing is crossed by five more or less scattered rows of black spots: an oblique antemedial row which is usually very incomplete with only the dorsal one or two spots always present, a broader median slightly 'S'-shaped row which is often incomplete, an almost straight and usually complete broader postmedial row, a very incomplete submarginal row of small spots of which usually only the middle spots are present and finally in the termen and fringes a row of black rounded spots between the veins. The wings and rows of spots are crossed by the pale coloured veins.

Hindwing like abdomen rose-red to orange-red with a pattern of black spots: usually a large black discal spot, in many specimens 'comma-shaped', in heavily patterned specimens sometimes accompanied by a tiny median band or some smaller spots. A scattered submarginal band of larger spots almost always present. Apex and hindmargin usually with some small black spots. Underside of forewing with about the same dark pattern but on

a paler ground colour: pale buff to sand-yellow with a rose-red blush antemedially. Hindwings at underside without rose-red colour but darker buff with a bright sand-yellow costa and with more extended dark pattern. Male genitalia: (prep. RV 1136, RV 1137, BM 3842) Uncus broadly beak-shaped with sharp down bend apex. Tegumen with rather large slightly sclerotized rounded flaps. Juxta shield-shaped with strongly sclerotized 'V'-shaped upper rim. Vinculum widely 'U'-shaped. Valva with costa of cucullus broadly folded, distally with a longitudinal keel running to the apex which is split into two rounded lobes, not as large and wide as in *kebea*. Sacculus distally with a large broad finger-shaped process with rounded and flattened apex, at an angle of 90° with valve. Aedeagus slightly curved with short coecum. Carinae formed by one spatula-shaped tooth and two small sharp teeth. Vesica with dorsal lobe scobinated and dorsally with a wide band of cornutal spines. Ventral lobe ventrally scobinated and with a small field of small cornutal spines with only few spines somewhat larger.

Female as male but distinctly larger. The forewing costa more arched. Antenna black and weakly dentated, almost filiform. Female genitalia: (prep. BM 6303) Ostium wide and very narrow. Lamella postvaginalis partly sclerotized and with some wrinkles. Lamella antevaginalis sclerotized and crescent-shaped with a clear median suture line. The ostium rim straight and with a strong ridge. Segment VIII very large and arched, around the ostium area deeply excavated. Antrum broad, constricted at one third basally and widening at the cervix bursae which is complexly curled. Bursa copulatrix rather small and globular, without signum.

Variation: As indicated above the species is very variable. The dark brown coloration on the forewing can be extended or reduced. In specimens with extended brown pattern the veins are almost of the same brown colour and black patches and spots are hard to discover. However, the pale sandy coloured costa remains always visible. The most common forms are pale and have the brown on the forewing much reduced, showing the sandy coloured groundcolour and three more reddish brown streaks across the length of the wing. In those forms the head and thorax are also sandy coloured.

The nomotypical form is not the most common one and resembles very much *kebea*, what probably was due to many misidentifications.

Distribution: A common species which is widely distributed from East to West through New Guinea, in lowland and at moderate altitudes in mountainous areas, from sea level up to 2400 me-



ter, but most frequently found between 900-1200 meter.

***Spilosoma kebea* (Bethune-Baker, 1904)** (Plate 47, figs 5-8; Plate 48, figs 1-4; Plate 60, figs 2a-c; Plate 73, figs 1a-d)

Diacrisia kebea Bethune-Baker (1904: 413); Rothschild (1910: 144); Strand (1919: 183)

Diacrisia kebeae: Rothschild (1914: 246) incorrect spelling

Spilosoma cebeae: Hampson (1920: 402) incorrect spelling

Lectotype ♂ BMNH [designated from syntypes]: PAPUA NEW GUINEA: Mount Kebea, B.C. New Guinea. 6,000 ft, iii.1903. A.E. Pratt Coll., G.T.B.-Baker Coll., Brit. Mus. 1927-360.

Paralectotype 1♀ BMNH [designated from syntypes]: PAPUA NEW GUINEA: as holotype but with iv.1903.

Diagnosis: Midsection of forewing usually darker patterned with pale costal patches. Dark pattern not or hardly crossed by pale veins. Marginal spots usually incomplete or lacking. Male genitalia with vinculum wide, process on sacculus long and thick, carinal plate with more than ten sharp teeth in two rows.

Description: FwL ♂ 22.0-25.3, ♀ 31.6-33.2 mm. Male antenna bipectinate, dark brown or black. Head dorsally pale brown or sandy coloured, always paler than the thorax, ventrally black, palpalae also black. Thorax with pale brown hairy scales but leaving a narrow black dorsal stripe. Patagia pale brown, tegulae for the greater part black, leaving a narrow pale brown rim dorsally. Thorax ventro-lateral black, in the centre between the legs mixed rose-red and sand-yellow pattern, legs black. Abdomen rose-red to orange-red with a black dorsal longitudinal band which may be rather diluted into dorsal dots or bands, ventrally pale buff with a pair of ventro-lateral longitudinal black lines. In the forewing the ground colour as well as the dark pattern is subject to a wide variation. In the lectotype the ground colour is brown with distinct chocolate brown transverse bands: an incomplete subbasal band consisting of a costal patch and a patch in the cell, a complete median band which is oblique and broad at the costa and acutely bend at an angle of 90° and narrowly continued towards the dorsum, a complete sinuous medial band and finally a triangle-shaped submarginal patch. In the apex tiny dots are present. Some submarginal spots are present, partly running into the fringes. All this pattern is very variable and will be discussed below. Hindwing in lectotype rose-red with some yellowish

tinge. A large comma-shaped medial black spot and a row of small postmedial spots are present, again very variable in size and number in other specimens. Underside of both wings with ground colour generally sand-yellow with a rose-red blush in the cell and a faintly rose-red tinge near the dorsum. The black pattern more pronounced and extended which results in confluent patches and bars. Especially on the underside of the hindwing the black pattern is strongly pronounced with a heavy median patch connected to the costa, and large postmedial patches. Male genitalia: (prep. RV 1132, RV 1133, BM 3834) Similar to *dinawa*. Uncus broadly beak-shaped with rather sharp down bend apex. Tegumen with at base of uncus a wide rounded sclerotized membrane which runs behind the uncus. Juxta large shield-shaped with a sharp 'V'-shaped upper rim. Vinculum wide but not deep. Valva broadly based. Cucullus with broadly folded costa and distally with a longitudinal keel running to the widely bilobed rounded apex (in *dinawa* more narrow). Sacculus with long bend finger-shaped process with rounded apex. Distal part of valve curved inwards. Aedeagus straight, in the middle with a node, distally broadening and with a wide split. Carinal plate with more than ten sharp smaller and larger teeth in two rows. Vesica with ventral lobe very large and deep, ventro-laterally at right side covered with cornutal spines and transforming into smaller scobination. Dorsal part of vesica also with a field of smaller cornutal spines varying in size, distally for the greater part finely scobinated.

Female much larger and robust. Antenna black and simple. Wingpattern very similar and just as variable as in male. The abdomen bright rose-red with a broad black dorsal band of confluent dorsal spots. Female genitalia: (prep. BM 6301) Segment VIII widely arched, excavated in the ostium area. Lamella postvaginalis narrow and lip-shaped, lamella antevaginalis broadly crescent-shaped with a shallow 'V'-shaped ostium rim. Sclerotized antrum broadly based, narrowing to a flattened short ribbon and transforming into a sclerotized and curled cervix bursae. Globular bursa copulatrix with two squarish signa which are compiled of numerous small conical thorns.

Variation: The species is extremely variable in both, male and female. The ground colour on the forewing can vary from pale buff to dark chocolate brown. The pattern on the forewing, if sharply defined, consists of a subbasal, antemedial and median band. The subbasal band can either be reduced to some patches or extended to a dark subbasal field. The three bands can either be clearly sepa-



rated or extremely confluent, forming a large dark median field. In all cases four strong costal patches are present and in between a paler area is always visible. The hindwings are almost always rose-red with a yellowish tinge at the edges.

Distribution: A common species, especially in the Star Mountains and to the East into Papua New Guinea. At more western localities less abundant. It prefers high altitudes above 1200 meters. Mainly distributed in the Central Mountain Range of New Guinea but also known from Woodlark Island.

***Spilosoma owgarra* (Bethune-Baker, 1908)** (Plate 48, figs 5-8; Plate 49, fig. 1; Plate 61, figs 1a-c; Plate 73, figs 2a-b)

ssp. *owgarra* (Bethune-Baker, 1908)

Diacrisia owgarra Bethune-Baker (1908: 191)

Diacrisia ougarra ougarra: Rothschild (1910: 146; 1914: 247) [incorrect spelling]

Diacrisia owgarra owgarra: Strand (1919: 209)

Spilosoma ougarra: Hampson (1920: 416) [incorrect spelling]

ssp. *germanica* (Rothschild, 1910)

Diacrisia ougarra germanica Rothschild (1910: 146; 1914: 247; 1916: 333)

Diacrisia owgarra germanica: Strand (1919: 209)

Spilosoma owgarra germanica: Hampson (1920: 416)

Holotype *Spilosoma owgarra* ♀ BMNH [mentioned as ♂ in original description]: PAPUA NEW GUINEA: B.N. Guinea, Owgarra, A.S. Meek.

Lectotype *Spilosoma owgarra germanica* ♂ BMNH [designated from syntypes]: PAPUA NEW GUINEA: Sattelberg, Germ.N.Guin., March 1906 (C. Wahnes), *Diacrisia ougarra germanica* Rothsch. Type.

Paralectotype *Spilosoma owgarra germanica* 1♂ BMNH [designated from syntypes]: PAPUA NEW GUINEA: same as holotype.

Diagnosis: The typical pattern of black patches with white veins on buff ground colour is characteristic. Male genitalia with apex of valvae curled worm-like, process on sacculus long finger-shaped.

Description: Fwl. ♂ 20.3-24.4 mm., ♀ 28.5 mm. Male antenna dark grey-brown with short pectination only on the outer side of the flagellum. Labial palpal dark grey-brown, rostrum black, head, patagia and rim of tegulae sand-yellow with a pinkish tinge. Tegulae in the centre filled with black, thorax dorsally broadly black, laterally edged sand-yellow, Ventrally head and thorax black, only between the legs mixed with rose-red and sand-yellow, legs black. Abdomen rose-red, distally with yellow or orange, and with a faint black dorsal line,

the last two segments with a transverse band, ventrally buff coloured with two ventro-lateral rows of black dots. Forewing with all veins contrastly pale sand-yellow, the rest of the wing filled with brown, except for the pattern of large black patches which are often edged pale sand-yellow. These black patches form the usual transverse bands (subbasal, antemedial, medial, postmedial and submarginal) in the genus which are all well developed and are all crossed by the pale veins. Underside of forewing in general identical to upperside but less pronounced dark patterned and with the centre of the wing brightly rose-red coloured. The hindwings are rose-red with sand-yellow fringes, dorsum and costa. The central stigma patch and the postmedial band are well developed, including some tiny submarginal spots at the apex and below that. The veins are thinly sand-yellow, particularly in the marginal half of the wing, and cross the red and black pattern. Underside of hindwing identical to upperside but less pronounced and with paler rose-red colour. Male genitalia: (prep. RV 1127, RV 1131) Uncus broadly beak-shaped with down bend blunt apex. Tegumen long with broad sclerotized membrane which runs behind the base of the uncus. Juxta large shield-shaped with wide concave upper rim. Vinculum widely 'V'-shaped. Valva long and curved inwards, broadly based, cucullus with folded costa without process, apically slender and extended into a worm-shaped apex. Sacculus with a long curved finger-shaped process with rounded apex. Aedeagus short and straight, distally widening and split. Carinal plate strongly sclerotized with some rows of numerous sharp teeth, the middle teeth being the largest in size. Vesica with dorsal and ventral lobes distinctly scobinated but without distinct cornutal spines.

Female with at one side dentated antenna. Very similar to male but more robust and with broader forewings. Female genitalia: (prep. RV 1325) Segment VIII widely arched with a wide and deep excavation in the ostium area. Lamella postvaginalis slightly sclerotized and narrow lip-shaped, lamella antevaginalis large, round and shield-shaped with a rather smooth ostium rim. Stronger sclerotized antrum rather long and straight with a curled cervix bursae and a large globular appendix bursa, almost as large as the globular bursa copulatrix. No signum present.

Variation: In Mabilabol (Star Mountains, Papua) about half of the population has reduced black pattern and resemble that of ssp. *germanica* (see below). The ground colour and size of these specimens is however that of the typical phenotype.



Distribution: The nomotypical subspecies prefers high altitudes and is found in Indonesian New Guinea in the eastern Central Mountain Range only, continued in Papua New Guinea to the south-east across the Central Mountains. Subspecies *germanica* occurs in the Northeast of Papua New Guinea, including Karkar Island (former Dampier Island).

Note: Subspecies *germanica* is in general identical to *owgarra* but smaller and with paler ground colour on the forewings. The black pattern on the forewings reduced showing more ground colour.

***Spilosoma pratti* (Bethune-Baker, 1904)** (Plate 49, figs 2-6; Plate 61, figs 2a-c; Plate 74, figs 1a-b)

ssp. *pratti* (Bethune-Baker, 1904)

Diacrisia pratti Bethune-Baker (1904: 412); Rothschild (1910: 144; 1914: 246); Strand (1919: 211)

Spilosoma pratti: Hampson (1920: 401)

ssp. *eichhorni* (Rothschild, 1917) stat. nov.

Diacrisea [sic] *eichhorni* Rothschild (1917: 483)

Spilosoma eichhorni: Hampson (1920: 402)

Lectotype *Spilosoma pratti* ♂ BMNH [designated from syntypes]: PAPUA NEW GUINEA: Type, Mount Kebea, B.C. New Guinea., 6,000 ft., March-April, 1903, A.E. Pratt Coll.

Paralectotype *Spilosoma pratti* 1♂ BMNH [designated from syntypes]: PAPUA NEW GUINEA: same as lectotype, [BMNH]; 1 ♂, Dinawa, B. New Guinea. 4,000 ft., Aug. 1902, Coll. A.E. Pratt.

Note: The specimen which is designated to be the lectotype is depicted by Bethune-Baker (1904) and bears the typical Bethune-Baker green round type label. From the original text it was not clear which of the three specimens was 'the type' so they could be considered to be syntypes.

Lectotype *Diacrisea eichhorni* ♂ BMNH [designated from syntypes]: PAPUA NEW GUINEA: Goodenough Isl., 2500-4000 ft., May 1913, A.S. Meek.

Paralectotypes *Diacrisea eichhorni* 2♂♂ BMNH [designated from syntypes]: PAPUA NEW GUINEA: as lectotype.

Diagnosis subspecies *pratti*: Thorax with a large black dorsal patch. Forewings elongated triangular with as most conspicuous pattern two black median dorsal spots. Hindwing pattern strong. Valvae in male genitalia at base with long peniculus-like structure, cucullus and sacculus both with processes.

Description, subspecies *pratti*: Fwl. ♂ 23.1-25.6 mm., ♀ 31.3 mm. Male antenna black, with short bipectination. Palpi black but ventrally ochre-

ous yellow. Head, patagia and tegulae dorsally buff, in the centre of the thorax dorsally a large velvet black patch, ventrally head and mesothorax black, prothorax pale buff mixed with some rose-red with two large caudal black patches, metathorax pale buff, legs black. Abdomen rose-red with a complete row of black dots dorsally and laterally, ventrally ochreous yellow. Forewings of the same buff colour as thorax but with the base of the costa slightly paler. A row of some black dots antemedially. The oblique median transverse is slightly sinuously running from costa to dorsum as a faint brown shadow but at the dorsum with two most conspicuous trapezium shaped patches, which is the best distinguishing character of this species, and at the junction of veins M3 and M2 and the cubital vein with a black patch, crossed by the veins. A short row of tiny marginal spots and a longer row of tiny submarginal (double) spots are present. Hindwing ochreous yellow with usually a rose-red tinge in the dorsal area. A conspicuous large comma-shaped median spot is always present and usually also a complete row of almost equal sized black submarginal spots, but in some specimens these can be absent almost entirely. Underside of both wings bright ochreous yellow with contrasting black pattern. Forewing with a median squarish spot in the cell and a row of some black postmedial spots. The centre of the basal half tinged rose-red. Hindwing with a large black comma-shaped median spot and a conspicuous complete row of black postmedial spots. One specimen from Patianda Watut (PNG) [CMWM] is very pale buff coloured with hardly any black wing pattern except for the two dorsal spots and a row of tiny postmedial spots. The hindwings are pale yellow.

Female antenna dark brown, filiform. Head cream coloured, patagia pinkish brown, tegulae cream coloured with a rose-red tinge. Thorax dorsally with a large velvet black patch. Abdomen bright red with a complete row of black dots dorsally and laterally. Forewings like in male buff with the same black pattern but much stronger and extended. The antemedial transverse with a broken costal spot, a median double spot and a black streak at the wing-base, the median transverse with the two trapezium shaped black patches at the dorsum, continued by some double spots running towards the junction of the M veins, a strong row of postmedial spots from apex to tornus and some submarginal spots in the middle of the termen. Hindwing reddish-yellow, marginally more yellow, fringes yellow. A large black median spot and a broad row large black equally sized submarginal spots, in the apex with some tiny



double spots.

Diagnosis ssp. *eichhorni*: Like in *pratti* with large dorsal patch on thorax. Forewings with complete antemedial band and median row of patches, and spots in (sub)marginal area near costa. Male genitalia: (ssp. *pratti*: prep. BM 6012, RV 1247; ssp. *eichhorni*: prep. BM 6288). Uncus oval beak-shaped (in *eichhorni* more narrow than in *pratti*) with blunt apex. Tegumen stretched, at base of uncus with a wide sclerotized rounded membrane. Juxta shield-shaped with concave upper rim. Vinculum wide and at apex flattened. Valva broadly based, costa of valva at base with extremely large outwards bend oval-shaped peniculus-like structure with granulated surface, cucullus at two-third with a short and sharp costal process at an angle of 90° with costa, distally curved inwards and with apex split into two elongated rounded lobes. Saccus distally with a broad and flattened process with rounded apex, at an angle of 90° with valve, which is different in size and shape in both valva. Aedeagus straight, distally broadening and bend, coecum very short. Carinae formed by a row of three sharp thorns and a parallel row of tiny teeth. Vesica with dorsal lobe dorsally covered with cornutal spines, ventral lobe distally scobinated and with a small field of cornutal spines of various size, those in the centre being the largest ones but smaller than those on dorsal lobe.

Description, subspecies *eichhorni*: Fwl. ♂ 22.8-24.5 mm. Male antenna black with short bipectination. Labial palpa and snout black, the upperside of head, patagia and tegulae beige or sand coloured with a rose tinge, tegulae at the base with a black dot. Underside of head, thorax and legs black. Upperside thorax between the tegulae dorsally velvet black. Abdomen bright red with a dorsal row of fine black dots, laterally with larger black dots, at underside ochreous yellow with two black longitudinal bands ventro-laterally. The forewings with much more contrast and more developed than *pratti*, pale buff coloured with distinct black pattern: a more or less complete curved antemedial band, a slightly sinuous median band of scattered rather large spots, a short row of broad postmedial spots in the costal third, a fine row of marginal spots continued by some double submarginal spots in the middle of the termen and one or two tornal spots. Hindwing rose-red, the marginal area and hairs at the dorsum orange-yellow. A large black median spot and a row of black postmedial spots of equal size interrupted in the middle of it, in the holotype this space is filled by a tiny spot. Underside of fore- and hindwings from base to centre rose-red fading

to ochreous yellow marginally. The black pattern identical to upperside but less pronounced.

Sexual dimorphism: Female of ssp. *eichhorni* unknown.

Female genitalia: (ssp. *pratti*: prep. BM 6297) Segment VIII arched, deeply excavated at the ostium area. Lamella postvaginalis large, almost square-shaped and with a slightly wrinkled surface. Lamella antevaginalis wide with a shallow 'V'-shaped ostium rim, sharply indented in the centre. Sclerotized antrum broad and short. Sclerotized cervix bursae large and curled. The globular bursa copulatrix without signum.

Distribution: Subspecies *pratti* is restricted to Papua New Guinea, mainly in the southeastern part, but specimens are known from more western localities too. It is a mountain species which is found at altitudes of 1000 to 1800 meters. Subspecies *eichhorni* is found on Goodenough Island (D'Entrecasteaux Islands, Papua New Guinea) only.

Note: The male genital slide BM 3853 (which slide label number is pinned under one of the dissected males in BMNH) is definitely mixed with another. It is not of the 'New Guinea type', more like a true *Spilosoma* from Taiwan, The Philippines or the mainland of Southeast Asia. This is very likely since Dr. Werner Thomas did dissections in mixed geographical order according to his slides numbering. The real *Spilosoma pratti* genitalia are seen at slide BM 6012 of which the external habitus of the moths are unseparable and undoubtedly belong to the same species!

***Spilosoma rubribasis* (Joicey et Talbot, 1916)**

(Plate 49, figs 7-8; Plate 50, fig. 1; Plate 62, figs 1a-c)

Diacrisia rubribasis Joicey et Talbot (1916: 373)

Spilosoma rubribasis: Hampson (1920: 405)

Holotype ♂ BMNH: INDONESIA: North N Guinea, Angi Lakes [Anggi Lakes], Arfak Mts., 6000 ft, i-ii.1914, leg. A.C. & F. Pratt.

Paratypes 2 ♂♂ BMNH: INDONESIA: as holotype.

Note: In the original description by Joicey et Talbot (1916) the number of seven males is mentioned. Only three of them are labelled as types (holotype and two paratypes).

Diagnosis: Yellow-brown forewing with black postmedial band at underside shining through the upperside. Four black costal spots present. Carinal plate in male genitalia with two short teeth, process on sacculus twisted and shorter than in *vulgaris*.

Description: Fwl. ♂ 23.0-25.9 mm. Male antenna bipectinate, yellow-brown basally with a black



shaft. Palpae reddish brown. Rostrum with black lateral tufts. Head and thorax dorsally and ventrally reddish brown, ventrally the thorax mixed with some rose-red, dorsally with a black central patch. Abdomen red-brown tinged pinkish with a black longitudinal dorsal band and a black transverse band on the last segment, ventrally pale buff coloured. Forewing yellow-brown with scarce black pattern: usually with four conspicuous black costal spots (subbasally, antemedially, median and submarginally). In the middle of the dorsum usually one or two oblique directed spots, a row of small marginal double spots and an incomplete row of even smaller submarginal double spots. In the postmedial field the heavy black postmedial band on the underside is shining through the wing on the upper surface. Specimens almost without any black pattern exist, only the black postmedial band of the underside is still shining through. The hindwing more or less amber-yellow (slightly paler than forewing colour) with the dorsal area with yolk- yellow hairs. The usual black pattern is present with a large median spot and a row of large postmedial spots. Underside as mentioned above with pronounced black and dark grey pattern. Ground colour of both wings in the costal area ochreous yellow with antemedially a rose-red tinge, in the rest of the wing paler buff coloured, fringes dark yellow. Costal spots and median spot, which is split in two or three pieces, of forewing black, the broad postmedial band dark grey which is shining through the wing and still visible on the upperside. In specimens with reduced pattern the black median and costal spots may completely lacking. Hindwing pattern identical to upperside but with an additional black streak at the dorsum. Male genitalia: (prep. BM 3896, BM 6008, BM 6009) Uncus beak-shaped with a broader basal half and a narrower apical half with blunt apex. Tegumen long with a sclerotized membrane, somewhat broader running behind the uncus. Juxta shield-shaped with a strong 'V'-shaped upper rim. Vinculum rather small 'U'-shaped. Valve with distal third curved inwards. Cucullus with folded costa without process. Sacculus distally with broadly based finger-shaped curved process with sharp apex (in *vulgaris* rounded) and ventro-dorsally flattened. Apex of valve bilobed with inbetween the rounded lobes an undulated rim. Aedeagus slightly curved in the middle, coecum slightly bend upwards. Distally the aedeagus is trumpet-shaped with an undep split. Carinal plate strongly sclerotized with on the distal rim corner one or two small thorns (in *vulgaris* a row of teeth). Vesica with dorsal lobe distally covered with a field of cornutal spines, ventral lobe distally

and ventrally covered with a field of cornutal spines of various size, the ventral ones being larger.

Sexual dimorphism: Female unknown.

Variation: Specimens with more pronounced wing pattern resemble *Spilosoma vulgaris* but the black costal patches are more divided in the middle and the wings are more yellow than the brown of *vulgaris*.

Distribution: The type locality is in the Arfak Mountains (Anggi Lakes) but additional specimens were found in the Weyland (= Kobowre) Mountains on Mt. Kunupi and in Pass Valley (Jayawijaya Mountains) at about the same elevation as in the Arfak Mountains, 1800-1880 meter. It must be a rare species, females have not been found yet.

***Spilosoma vulgaris* sp. nov.** (Plate 50, figs 2-7; Plate 62, figs 2a-c; Plate 74, figs 2a-c)

Holotype: INDONESIA: ♂, Indonesia, Papua, Kecamatan Nipsan, Walmak, 4°07' S – 139°38' E, 1710 m, 31.i-9.ii.2005, at light, cultivated/disturbed mountain rainforest, UNCEN-ZMA expedition 2005, [ZMAN].

Paratypes 81♂♂, 7♀♀: INDONESIA: 1♂ ZMAN: Ned. Nw. Guinea, Jafi District, Keerom Rivier, 28.x.1938, leg. W. Stüber, coll. J.M.A. van Groenendael; 19♂♂, 5♀♀, same as holotype [17♂♂, 4♀♀ ZMAN; 2♂♂, 1♀ CMWM]; 3♂♂ ZMAN: Indonesia, Irian Jaya, Central Highlands, Kecamatan Nipsan, Walmak, 4°07' S – 139°38' E, 1710 m, 30.v.-4.vi.2000, H.J.M. van Mastrigt; 6♂♂ ZMAN: Indonesia, Papua, Central Highlands, Kecamatan Abenaho, Pass Valley, 3°51' S – 139°05' E, 1950 m, 11-17.ii.2005, UNCEN-ZMA expedition 2005; 2♂♂ ZMAN: Indonesia, Irian Jaya, Baliem Valley, Wamena, 1600 m, 19.x.1993 [1♂], 1500 m, 24.x.1993 [1♂], A.J. de Boer, A.L.M. Rutten & R. de Vos; 1♂ ZMAN: Indonesia, Irian Jaya, Centraal Bergland, Bilogai, 2050 m, 20-25.v.1988, H.J.M. van Mastrigt; 4♂♂ ZMAN: Indonesia, Irian Jaya, Star Mountains, Abmisibil, 2000 m, 23.viii.1984 [1♂], 1890 m, 27.ii-1.iii.1989 [1♂], 1970 m, 29.xi-3.xii.2001 [2♂♂], H.J.M. van Mastrigt; 1♂ ZMAN: Indonesia, Papua, Star Mountains, Abmisibil, 4°40' S – 140°34' E, 1970 m, 29.i-9.ii.2005, UNCEN-ZMAN Expedition 2005; 1♂ ZMAN: Indonesia, Irian Jaya, Birdshead Peninsula, Warkapi (nr Breie), 500 m, 12.xi.1993, A.J. de Boer, A.L.M. Rutten & R. de Vos; 1♂ ZMAN: Indonesia, Papua, Mokwam, Siyoubrig, Arfak Mts., 1°06' S – 133°54' E, 1400-1800 m, 24-28.iii.2007, G. Withaar; 1♂ ZMAN: Indonesia, Irian Jaya, Baliemvalley, Jiwika, 1600 m, 19.x.1993, A.J. de Boer, A.L.M. Rutten & R. de Vos; 2♂♂ KSP: Indonesia, Irian Jaya, Wasior, Kecamatan Wasior, Gn. Wondiboy, 1600 m, 23.ii.1997, H. van Mastrigt; 1♂ KSP: Indonesia, Irian Jaya, Wasior, Kecamatan Wasior, Gn. Wondiboy, 1050 m, 21-22.ii.1997, H. van Mastrigt; 1♂ KSP: Indonesia, Irian Jaya, Kecamatan Enarotali, En-



arotali, 29.iv.1979, [H. van Mastrigt]; 1♂ KSP: Indonesia, Irian Jaya, Kecamatan Bilogai, Bilogai, 10.ii.1982, [H. van Mastrigt]; 1♂ KSP: Indonesia, Papua, Kecamatan Bilogai, Bilogai, 3°44' S – 137°02' E, 19-20.xii.2001, [H. van Mastrigt]; 5♂♂ KSP: Indonesia, Irian Jaya, Kecamatan Abenaho, Pass Valley, 1850 m, 13-20.v.1999, H. van Mastrigt; 1♂ KSP: Indonesia, Irian Jaya, Kecamatan Bokondini, Bokondini, 10.iii.1985, [H. van Mastrigt]; 2♂♂ KSP: Indonesia, Irian Jaya, Kabupaten Yahukimo, Kecamatan Nipsan, Walmak, 1550 m, 7-10.iii.1994, H. van Mastrigt; 1♂ KSP: Indonesia, Irian Jaya, Kecamatan Borme, Borme, 800 m, 17-24.ix.1998, H. van Mastrigt; 2♂♂ KSP: Indonesia, Irian Jaya, Peg. Bintang, Kecamatan Okbibab, Abmisibil, 1850 m, 15.ix.1985 [1♂], 9-13.xi.1990 [1♂], H. van Mastrigt; 2♂♂ KSP: Indonesia, Irian Jaya, Mabilabol, 28.iii.1982 [1♂], 1500 m, 13.iii.1988 [1♂], [H. van Mastrigt]; 1♂ KSP: Indonesia, Irian Jaya, Kecamatan Nipsan, Nipsan, 1700 m, 12.viii.2000, [H. van Mastrigt]; 1♂ KSP: Indonesia, Papua, Kec. Sarmi, Peg. Foja, 2°34.5'S 138°42.9'E, 1650 m, 23.xi-7.xii.2005, CI-RAP, ksp42111; 6♂♂, 2♀♀ BMNH: Dutch New Guinea, Mt. Kunupi, Menoo Valley, Weyland Mts., 6000 ft, xii.1920-i.1921, C., F. & J. Pratt; 3♂♂ BMNH: Dutch New Guinea, Mt. Lina, Cyclops, 3500 ft, iii.1936, L.E. Cheesman; 2♂♂ RMNH: Nieuw Guinea Exp, K.N.A.G. 1939, Paniai, 4.ix.1939 [1♂], 8.ix.1939 [1♂]; 3♂♂ CMWM: Indonesia, Papua, Nabire Region, 600-900 m, i.2004, S. Jakl; 1♂ CMWM: Indonesia, Irian Jaya, Maoke Mountains, Walisi, 8 km SO Wamena, sekundärvegetation, 1890 m, 2.xii.1997, K. Cerny; PAP-UA NEW GUINEA: 5♂♂ BMNH: New Guinea (M.T.) [Mandate Territory], Aitape, x-xi.1936, L.E. Cheesman.

Derivatio nominis: The name *vulgaris* refers to the high abundance of the species in its habitat.

Diagnosis: Black costal patches are most conspicuous, with obscure brown transverse lines. Carinal plate in male genitalia with at least four sharp teeth, process on sacculus longer than in *rubribasis* and not twisted. This common species has always been overlooked, obviously by confusing it with the similar *Spilosoma dinawa* and *rubribasis*. However, *dinawa* is easily separated by the pale veins on the forewing which are crossing the dark forewing pattern, which is not the case in *vulgaris*. Furthermore the forewing pattern of *vulgaris* is less pronounced than that of *dinawa*. The forewing ground colour of *rubribasis* is generally much paler with shining-through black pattern from the underside and the hindwings are yellowish instead of rose-red, furthermore the wings are shorter. The black costal markings are in *vulgaris* closer together in the middle than in *rubribasis*. It can also be confused with *S. kebea* which occurs sympatrically

in some mountainous areas (i.e. in the Jayawijaya Mountains and in the Star Mountains), but this species has much stronger pattern, especially in the centre of the forewing and with an almost always complete median transverse band. The valvae are very similar but the scobination on the vesica and the carinal teeth on the aedeagus are distinctly different.

Description: Fwl. ♂ 22.6-26.8 mm., ♀ 28.4-35.2 mm. Definitely related to *rubribasis*, but generally larger and with darker ground colour. Male antenna black, with short bipectination. Head pale buff, palpal black, thorax dorsally darker buff, ventrally with prothorax centrally black with rose-red and buff margin, meso- and metathorax buff. Tegulae sometimes with a black patch which can be stretched. Legs black with femur basally rose-red mixed with buff. Abdomen rose-orange with laterally and dorsally a row of distinct black dots, ventrally buff with two ventro-lateral rows of black dots, distally with yolk-yellow tuft. Forewing with ground colour buff with two indistinct brown oblique transverse bands and the cell partly filled with a brown streak. The entire forewing sprinkled with brown scales, except for the costa which is marked with four large and squarish velvet black patches. Furthermore usually a black dot in the apex, a row of small double submarginal dots, a few dots in the fringes at the termen and some double dots in the middle at the dorsum and in the tornus. The veins on the forewing not pronounced by pale colour like in *S. dinawa*. Hindwing rose-red, fading to orange marginally. With black pattern consisting of a large median comma-shaped dot and a postmedial row of irregular sized black spots. Usually also with a black marginal spot. Underside of both wings bright ochreous yellow, forewing with centre of basal half rose-red, hindwing basally slightly tinged rose-red. Base of forewing buff. Black pattern on both wings identical to upperside but with the median spot and some postmedial spots strongly pronounced. Male genitalia: (prep. RV 1134, RV 1135, RV 1299, RV 1300) Uncus broadly beak-shaped with blunt apex. Long tegumen with a wide and rounded sclerotized membrane at the base of the uncus. Juxta large shield-shaped with a 'V'-shaped upper rim. Wide vinculum undep. Valva with costa of cucullus folded and with a short finger-shaped process distally, the sacculus with a broadly based finger-shaped process which is shorter and sharper than in *kebea* and longer and more blunt than in *rubribasis*. Apical part of valve hook-shaped with blunt apex, not like the bilobed and undulated valve apex of *rubribasis*. Aedeagus rather long and slightly curved with



gradually widening distal part with a wide and deep split. Carinal plate with a row of four or five coarse sharp teeth almost equal in size, accompanied by a few smaller ones next to this row. Vesica dorsally coarsely scobinated and with a field of tiny cornutal spines, ventrally scobinated with a central field of longer cornutal spines.

Female antenna black, filiform. Head pale buff, thorax darker with some orange tinge and usually with a median dorsal black stripe. Abdomen rose-red, laterally and distally orange, and with a row of large black lateral and dorsal dots which may be confluent. Forewing reddish brown to darker brown with faint orange or brown antemedial and median oblique transverse bands, at the cubital vein acutely angled towards costa. At the costa four distinct squarish or triangle-shaped black patches, an incomplete row of some black marginal spots, some black submarginal double spots, two or three black fringal spots in the middle of the termen and two black larger double spots in the middle of the dorsum and in the tornus. At the end of the cell a faint brown comma-shaped median spot, the cell partly filled with darker brown. Hindwing rose-red with orange fringes. Black pattern on the hindwing extended as streaks from base to the middle of the wing and with a row of large irregular sized post-medial black dots and with a marginal spot. Female genitalia: (prep. RV 1326) Very similar to that of *kebea*, best distinguished by the signa and antrum. Segment VIII widely arched with a round excavation in the ostium area. Lamella postvaginalis slightly sclerotized, somewhat wrinkled and with a stronger sclerotized and rounded upper rim. Lamella antevaginalis crescent-shaped with a very shallow 'V'-shaped ostium rim. First half of antrum less sclerotized than second half. In the first half broadening to a node, the second half transforming into the large and complicated curled cervix bursae. Globular bursa copulatrix large and with two large squarish signa with numerous tiny spines, finer than those of *kebea*.

Variation: The species is quite variable in colour and intensity of the wing pattern but the described pattern is generally present. The ground colour of the head, thorax and abdomen may vary from pale buff to almost chocolate brown, the last being rare and mostly found in females. The veins are never pronounced by pale scaling like in *S. dinawa*, which is an important distinguishing character. The size of the black spots can vary considerably.

Distribution: The species is very common at some localities in mountainous areas, i.e. in the Jayawijaya Mountains it is one of the most common

arctiine moths. It is found in the Birdshead Peninsula, as well as in the Wandammen Peninsula, the Cyclop Mountains, the Central Mountain Range from the Weyland Mountains (now Kobowre Mountains) further eastward into Papua New Guinea. It prefers mountainous areas up to 2050 meters but is also rarely found in lowland areas like in Jafi District at the Keerom River where it occurs sympatrically with the similar *Spilarctia dinawa*.

arctichroa group

Spilosoma arctichroa has unique male genitalia and wing pattern which do not fit in any other group. However, the aedeagus structure and carinal plate indicate a relationship with the *dinawa* group. The male valve carries only an apical process on the cucullus and strongly curved inwards.

This species group is endemic in New Guinea.

***Spilosoma arctichroa* (Druce, 1909)** (Plate 50, fig. 8; Plate 51, figs 1-2; Plate 63, figs 1a-c; Plate 75, figs 1a-b)

Diacrisia arctichroa Druce (1909: 347); Rothschild (1910: 148, 1914: 247, 1915: 50); Strand (1919: 169)

Spilosoma arctichroa: Hampson (1920: 407)

Holotype ♀ BMNH: INDONESIA: Dutch New Guinea, Fakfak, 1700 ft, xi.1907, leg. E.A. Pratt [BMNH].

Diagnosis: The white forewings with black squarish patches are characteristic. Hindwings orange-red. Male genitalia with apex of valvae not bilobed and strongly curved, one apical process on cucullus.

Description: Fwl. ♂ 18.8-20.4, ♀ 26.9-27.4 mm. Head cream-white with antenna black, in male short bipectinate, in female filiform. Palpae black, cheeks at underside head yellow. Patagia cream-white with distal edge orange or rose-red tinged. Tegulae long and slender, cream-white with large triangle shaped dark brown patch in the centre. Thorax laterally cream-white, in the middle a broad dark brown dorsal band. Prothorax at underside black, mesa- and metathorax at underside for the greater part yellow and red ventrally and black laterally, legs are black, except for the yellow hind-coxa. Abdomen orange-red with a row of blackish dorsal spots from the middle to the last segment, at the underside yellow with large black lateral dots. Forewing broad with cream-white ground colour with a typical arctiid pattern of dark brown patches: a small black basal spot, one subbasal spot, a antemedial row with a sharp angle of 4 patches, a median row of 5 large patches and two smaller ones



at the end of the cell, a postmedial interrupted row with 3 patches in the tornus and 3-4 smaller patches in the submarginal field, 4 marginal patches and finally a row of 2-6 small submarginal spots. All these spots and patches are subject to variation and can either be reduced or extended to confluent with others. Especially in the females the broader forewings disperse the patches and give the patches a smaller appearance. Hindwing rose-red fading to orange towards the margin. A small black discal spot and two incomplete rows of black narrow postmedial and broader submarginal spots, in females much more pronounced than in males. Underside forewing cream-white with the costal half from base to discal area rose-red. Black patches like on upperside but somewhat more pronounced and extended. Underside hindwing rose-red fading to orange towards costa and margin. Black patches and spots like on upperside but more pronounced. Male genitalia: (prep. RV 1162, BM 3824) Uncus rather small, beak-shaped with down bend apex. Juxta widely bottle-shaped with slightly indented top. Valva rather simpel, broadly based and gradually narrowing towards apex. Cucullus with a finger-shaped process just before apex, at 90° angle with costa. Apical part of cucullus curved inwards and with spoon-shaped apex. Aedeagus slightly curved, coecum straight. Carinal plate strongly sclerotized and extended with at the margin a few widely based sharp teeth in a row resembling a crown, flanked by two tiny teeth. Vesica with on both, dorsal and ventral lobe, a field of small conical cornutal spines. Female genitalia: (prep. BM 6300) Ostium widely open. Lamella postvaginalis slightly sclerotized and wrinkled and with a straight apical rim. Lamella antevaginalis large, heart-shaped and with a shallow 'V'-shaped ostium rim. Antrum broad and flattened and relatively short, cervix bursae sclerotized and curled. The globular bursa copulatrix without signum.

Distribution: A common species from low-land areas (from sea level up to 1050 meters), almost exclusively distributed in the Indonesian part of New Guinea, from Batanta Island in the West to the Papua New Guinea border in the East. In Papua New Guinea the species has been found at the northern coast in Njau Limon, a small village at the Bougainville Bay, just near the border of Indonesia. It is to be expected that its territory reaches further eastward along the coast in northern Papua New Guinea.

holobrunnea group

Species in the *holobrunnea* group are charac-

terized by the extended isolated carinal plate in the aedeagus which is strongly sclerotized. The ground colour of the forewings is usually brown and the wing pattern is with rows of fine black dots. According to the male valva we can recognize two subgroups: one with narrow curved valvae with bilobed apex (*Spilosoma holobrunnea* and *S. postbrunnea*) and one with broad valvae and a broad triangular shaped process on the sacculus (*Spilosoma ruficosta* and *S. wernerthomasi*).

An undescribed species which most likely also belongs to the *holobrunnea* group is found on Timor (CMWM collection).

***Spilosoma holobrunnea* (Joicey et Talbot, 1916)**

(Plate 51, figs 3-5; Plate 63, figs 2a-c; Plate 75, figs 2a-b)

Diacrisia holobrunnea Joicey et Talbot (1916: 373)

Spilosoma holobrunnea: Hampson (1920: 408)

Holotype ♀ BMNH: INDONESIA: Angi [Anggi] Lakes, Arfak Mts., 6000 ft, North N Guinea, i-ii.1914, A.C. & F. Pratt.

Diagnosis: A rather large species with broad wings. Both wingpairs at both sides dark brown, hindwings somewhat paler than forewings. Presumed males of this species have three transverse rows of dark dots and an acute angled antemedial line which is also all obscurely visible in the only known female (holotype). Male genitalia with apex of valvae bilobed and not strongly curved, apical process on sacculus, vesica of aedeagus ventrally and dorsally with field of strong cornutal spines.

Description: Fwl. ♂ 21.2 mm., ♀ 27.9 mm. The only known specimen with certainty is the female holotype which makes it very difficult to match with possible males. However, we think that we found the males of this species which will be described hereafter. Female robust with chocolate-brown head and brown antenna with short pectination. Thorax chocolate-brown with a black dorsal marking on the thorax, which might be a patch or stripe in other specimens. Abdomen brown-red with a rose tinge and with a black dorsal stripe. Forewing unicolorous brown with a faint darker pattern of a antemedial and antemedian transverse line. A weak black stigma stripe in the cell and a row of weak postmedial dots. A weak submarginal dark triangle visible. Hindwing rose red, heavily sprinkled with dark brown scales. A heavy comma-shaped stigma mark and a row of irregular black postmedial spots. Female genitalia: (prep. BM 3409) Lamella postvaginalis with two rounded apical lobes and centrally sharply 'V'-shaped indented. Lamella



antevaginalis stronger sclerotized, shield-shaped with a shallow 'V'-shaped ostium rim, followed by a short and broad ribbon-like sclerotized antrum. Cervix bursae transformed into the the sclerotized base of the bursa copulatrix which is rather small and globular. A flat and waved ridge runs from antrum to cervix bursae over the basal part of the bursa copulatrix surface, probably the region where the ductus seminalis originates from but this could not be observed in the fixed preparate. No signum present.

The presumed male has brown bipectinate antenna. Head, palpa and thorax dark grey-brown with a black dorsal stripe on the thorax, at the underside chocolate-brown with legs mixed with rose-red and grey-brown hairs. Abdomen dorsally rose-red with brown hairs covering the first half and with a black dorsal stripe, at the underside dark brown. Forewing unicolorous grey-brown with scarcely black pattern. The antemedial, median and postmedial transverse are mostly expressed with black at the dorsum and costa, forming black patches, and on the veins in the postmedial and median area. A fine row of submarginal spots present. In the cell a weak black stigma mark is visible, almost identical to that in female. Hindwing brown-yellow sprinkled with grey-brown scales. A heavy stigma mark and a row of dark postmedial dots are present. Underside of fore- and hindwing uniform grey-brown with dark brown pattern, the dot markings as on upperside and additionally a broad postmedial band on the forewing, hindwings with a distinct costal spot besides the usual median spot and postmedial row of spots. Male genitalia: (prep. RV 1242) Similar to *postbrunnea*. The genitalia of the presumed male of *holobrunnea* has a broad beak-shaped uncus with a sharp apex. Tegumen long and stretched with a slightly membranous rim along the tegumen which slightly broadens at the base of the uncus. Juxta squarish with widely concave upper rim. Vinculum widely 'V'-shaped. Elongated base of valve with at junction with tegumen with a stretched triangular peniculus-like structure. Valva narrow and curved inwards. Cucullus curved with wrinkled costal rim. Saccus distally with a short finger-shaped process. Apex of valve bilobed. Aedeagus straight with distal part nodded down and irregularly incised. Coecum short and slightly bend upwards. Carinal plate granulated with two small teeth. Vesica with dorsal lobe dorsally covered with a field of cornutal spines which are longer than those on the ventral lobe. The entire vesica scobinated with tiny chitine drops.

Distribution: The species must be very rare.

Apart from the female holotype from the Anggi Lakes in the Arfak Mountains, and which has the only certain identity, the presumed males are found in Patianda Watut, Papua New Guinea. The species probably prefers mountainous areas and has been found at 1700-1800 meters.

***Spilosoma postbrunnea* sp. nov.** (Plate 51, figs 6-7; Plate 64, figs 1a-c)

Holotype ♂ BMNH: PAPUA NEW GUINEA: British New Guinea, Mt. Tafa, 7650 ft, iii.1934, L.E. Cheesman.

Paratypes 2♂♂ BMNH: PAPUA NEW GUINEA: British New Guinea, Mt. Tafa, 8,500 ft, ii.1934 [1♂], iii.1934 [1♂], L.E. Cheesman.

Derivatio nominis: The species is named after its unusual brown coloured hindwings.

Diagnosis: A large species with broad forewings. Even darker brown on both wings and both sides than the previous species, fore- and hindwings equally coloured. Abdomen brighter rose-red than previous species. Male genitalia with apex of valvae bilobed and not strongly curved, apical process on sacculus, vesica with tiny scobination and without distinct cornutal spines.

Description: Fwl. ♂ 25.1-26.5 mm. Certainly closely related to *holobrunnea* as indicated by the genitalia but much larger and with different pattern. Male antenna brown, bipectinate. Rostrum brown, underside of head and palpa black. Frons, patagia and tegulae dark chocolate brown, thorax grey-brown. Underside prothorax grey-brown, meso- and metathorax dark ochreous brown. Legs hairy brown, inside tibia of forelegs and inside tarsae of all legs black, at upperside only the last segments of tarsae black. Abdomen red with a black dorsal stripe and lateral black dots, underside dark ochreous brown. Forewing uniform dark brown and sprinkled with darker scales. At the costa small black subbasal spots, antemedially, submarginally and marginally which are in pairs closer to each other than in *holobrunnea*. An oblique median transverse row of black double spots from the middle of the dorsum, curved at the subcostal vein towards the submarginal costal spot. A vague row of small black postmedial double spots. Underside of forewing dark ochreous brown, distal half sprinkled with dark grey scales. Dark grey median spot distinct as is a large black postmedial twin spot at vein M2. Furthermore a black subbasal spot and a weak antemedial costal spot. Other pattern is very faint. Hindwing of the same dark colour as forewing, which is rather unusual in the genus. A large comma-shaped black median spot, a black sinuous narrow



median line which is incomplete but clearly defined below the median spot. A slightly sinuous row of black postmedial spots which is incomplete and irregular sized. Underside dark ochreous brown, like underside forewing, with dark grey pattern identical as upperside but with a conspicuous black costal streak connected to the sinuous median line. Male genitalia: (prep. BM 6010) Resembling that of *holobrunnea*. Uncus broadly beak-shaped with sharp down-bend apex. Juxta with basal part broadly shield-shaped, apical part squarish with a small 'V'-shaped incision in the upper rim. Vinculum widely 'V'-shaped. Valva rather narrow. Cucullus with broadly folded costa and without process but with a sharp ridge apically running to apex of valve. Apex of valve bilobed with sharp apices and with irregularly concave distal rim. Sacculus distally with short broadly based process with rounded apex. Aedeagus straight with broadened distal part and extended strongly sclerotized carinal plate. Carinal plate granulated with distally some small blunt teeth. Dorsal lobe of vesica with tiny cornutal spines, large ventral lobe largely covered with small cornutal spines.

Sexual dimorphism: Female unknown.

Distribution: So far only known by the three type specimens which originate from Mt. Tafa in Papua New Guinea.

***Spilosoma ruficosta* (Joicey et Talbot, 1916)** (Plate 51, fig. 8; Plate 52, fig. 1; Plate 64, figs 2a-c)

Diacrisia ruficosta Joicey et Talbot (1916: 374)

Spilosoma ruficosta: Hampson (1920: 377)

Holotype ♂ BMNH: INDONESIA: North N Guinea, Angi Lakes [Anggi Lakes], Arfak Mts., 6000 ft, i-ii.1914, leg. A.C. & F. Pratt.

Paratype 1♂ BMNH: INDONESIA: same as holotype.

Diagnosis: Ochreous-brown forewings with an oblique row of fine black dots and two characteristic submarginal rows of black dots. Sacculus in male genitalia with very broadly based triangular process with sharp apex, carinal plate with one large and three smaller teeth.

Description: Fwl. ♂ 25.9-26.2 mm. Male antennal shaft dorsally black, ventrally brown, bipectinated which is brown coloured. Basal segment of palpaes ochreous yellow, apical segments black. Head, thorax and abdomen dorsally ochreous-brown, ventrally the head and prothorax are black, meso- and metathorax and abdomen pale buff. Thorax dorsally with a black median patch, abdomen without pattern. Fore- and midlegs with femur basally yolk-yellow haired, distally black, tibia and

tarsae black, hindlegs with femur pale buff haired, tibia pale buff scaled, knee and tarsae black. Forewing ochreous yellow with a pattern of fine black dots, an oblique black line running from apex to dorsum at two-third of its length which is crossed by the ochreous veins, two short curved submarginal rows continued by an ochreous oblique line parallel to the black line just mentioned. A conspicuous larger black antemedial dot on the costa. Furthermore a tiny spot at the end of the cell, an incomplete row of double spots submarginally and some tiny spots at the dorsum. The hindwing pale buff with ochreous veins, a black median spot and a row of postmedial spots which can vary in size and is incomplete. Underside of both wings pale buff coloured with forewing basal area and costa bright ochreous yellow. Black pattern identical to upperside but much more pronounced, median spots larger. Male genitalia: (prep. BM 6013) Uncus broadly beak-shaped with blunt apex. Tegumen at base of uncus with wide rounded slightly sclerotized membrane. Juxta vase-shaped with strongly sclerotized upper rim which is widely 'V'-shaped. Vinculum wide and at apex slightly concave. Valva rather short and broad. Cucullus with costa narrowly folded and sinuous towards a distal triangular process which is folded inside with a sharp apex. Apex of valve sharp and bend down with a distal irregular undulated rim running to the broadly based and large process of the sacculus, which has a sharp apex. Aedeagus long and slightly curved, distally gradually broadening and with a wide split. Carinal plate extended and strongly sclerotized, distally with a large triangular tooth followed by three smaller teeth. Vesica with dorsal lobe widely scobinated and dorsally with a field of small cornutal spines, ventral lobe covered with tiny cornutal spines.

Sexual dimorphism: Female unknown.

Distribution: The species is only found near the Anggi Lakes in the Arfak Mountains. It must be a rare species.

***Spilosoma wernerthomasi* sp. nov.** (Plate 52, figs 2-5; Plate 65, figs 1a-c)

Holotype ♂ CMWM: PAPUA NEW GUINEA: Papua New Guinea, Morobe District, Patianda Watut, 1700 m, vi.1987, coll. W. Thomas.

Paratypes: PAPUA NEW GUINEA: 3♂♂ CMWM: same as holotype; 1♂ CMWM: Papua New Guinea, Morobe District, Gumi Watut, vi.1986, coll. W. Thomas; 1♂ BMNH: British New Guinea, Saiko, Bubu River, Upper Waria River, 5000 ft, x.1936, F. Shaw Mayer; 1♂ BMNH: Brit. N. Guinea, Angabunga R., affl. Of St Joseph R., 6000 ft., upwards, xi.1904-ii.1905, A.S. Meek; 3♂♂ BMNH: B.N.G.,



Biagi, Mambare R., 5000 ft., iii.1906 [1 ♂], iv.1906 [2 ♂♂], A.S. Meek.

Note: Furthermore 3♂♂ (vii.1986) from Woodlark Island [CMWM] of which the genitalia are not examined and therefore are excluded from the type series to avoid possible misidentifications.

Derivatio nominis: The species is named in honour of Dr. Werner Thomas, who was an expert on Arctiidae and deceased at the too young age of 45 in 1991. Most specimens of this species and many others described in this publication are from his collection, now at CMWM and ZSM.

Diagnosis: A large species with broad forewings, similar to *alberti* but with groundcolour sprinkled with dark scales. Transverse lines more distinct than in *alberti*. Sacculus in male genitalia with very broadly based triangular process with sharp apex, carinal plate with one tooth.

Description: Fwl. ♂ 24.2-25.9 mm. Appearance similar to that of *S. alberti* and this specimen was subsequently arranged under this species in the BMNH collection. Male antenna brown, bipectinated. Head and thorax dark brown, underside of head black, underside thorax with sand-yellow and red hairs, legs black. Abdomen rose-red with a broad dorsal and lateral black band. Forewing broad, dark buff coloured and sprinkled with tiny brownish speckles. Clearly defined narrow black transverse lines. Antemedial and medial shade line reddish brown. Antemedial line zigzagging, accentuated on the cubital vein. A dense median and postmedial row of small double spots, at the costa more heavy forming two costal spots and a row of more scattered submarginal double spots. At the end of the cell a large dark brown median spot is present. All this dark pattern can be fainted in some variations but is still more or less visible. In the holotype it is most visible. Underside of forewing orange-brown with rose-red antemedial area, towards margin fading to grey-brown and increasingly speckled with brown scales. Costal spots as upperside, discal spot smaller and black. At dorsum antemedially a black streak, black medial and postmedial band incomplete but distinct. Hindwing rose-orange centrally fading to orange-yellow marginally. A strong comma-shaped black median spot with a thin sinuous median line. A black postmedial band of irregular sized and variable shaped spots, and with some small black marginal spots. The intensity of the black pattern can vary. Entire hindwing on underside speckled with brown scaling, at basal dorsum and costa more extensive. Male genitalia: (prep. RV 1251, BM 6011) Un-

cus beak-shaped, dorsally arched and with a blunt apex. Juxta broad, trapezium-shaped, at the top slightly indented. Right and left valva asymmetrical. Right valve rather narrow and curved inwards. At the costa of cucullus no processes, apex abruptly rectangular and with complex folds and slightly indented. At the end of the sacculus a rather narrow and long process, pointing inwards, with rounded apex and bearing one tiny thorn. Left valve broader and curved at the distal part, cucullus with rounded apex, distal rim strongly folded. At the end of the sacculus a broadly based process, gradually tapering to a blunt apex. Aedeagus slightly curved, coecum curved upwards. At left side ventro-laterally with strongly sclerotized carinal extension with one tooth. Vesica at dorsal lobe with a circular field of short cornuti, at the sides transforming into chitinous drops. Ventral lobe with a field of curnuti and chitinous drops.

Sexual dimorphism: Female unknown.

Distribution: The species is with certainty found in the Morobe Province (PNG) at an altitude of about 1700 meters. The occurrence of the species on Woodlark Island needs confirmation by genitalia studies.

costata group

The *costata* group is characterized by a broad male valva which is narrowly based and apically broadening with an irregular apical rim. The aedeagus is of the *dinawa* group type. The uncus of *Spilosoma hypsoides* forms an exception in the *Spilosoma* genus being rather slender with a constricted base. Most other species have a beak-shaped uncus with a broad base. The two New Guinea species of this group are both pale yellow coloured.

From the two treated New Guinea species of this group only *costata* reaches outside New Guinea to the Bismarck Archipelago and Fergusson Island. An undescribed species is found on Guadalcanal (Solomon Islands) with similar vein pattern but with more additional suffusion of dark coloration on the forewings (CMWM collection).

***Spilosoma costata* (Boisduval, 1832)** (Plate 52, figs 6-8; Plate 53, fig. 1; Plate 65, figs 2a-c; Plate 76, figs 1a-d)

Chelonia costata Boisduval (1832: 213)

Phissama costata: Pagenstecher (1900: 50)

Diacrisia costata: Hampson (1901: 295); Rothschild (1914: 244); Strand (1919: 175)

Diacrisia costata costata: Rothschild (1910: 139)

Spilosoma costata: Hampson (1920: 394)

Aganais fulvia: Kirby (1892: 386) nec Donovan



(1805)

Diacrisia costata vivida Rothschild (1910: 139; 1914: 244); Strand (1919: 175); Hampson (1920: 394) **syn. nov.**

Holotype *Spilosoma costata* ♀ BMNH: PAPUA NEW GUINEA: Port Praslin [New Ireland], Durv. [J. Dumont D'Urville]. Ex Musaeo Dris. Boisduval [BMNH].

Lectotype *Diacrisia costata vivida* ♂ BMNH [designated here from syntype series]: PAPUA NEW GUINEA: Fergusson Island, xii.1895, leg. A.S. Meek.

Paralectotypes *Diacrisia costata vivida* 3♂♂ BMNH [designated here from syntype series]: PAPUA NEW GUINEA: 1♂, British New Guinea, Biagi, Mambaré River, 5000 ft, iii.1906, leg. A.S. Meek; 1♂, British New Guinea, Upper Aroa River, ii.1903, leg. A.S. Meek; 1♂, British New Guinea, Milne Bay, i.1899, leg. A.S. Meek.

Systematics: There is no significant difference in both taxa, *costata* (TL: New Ireland) and *vivida* (TL: Fergusson Island, New Guinea). Rothschild (1910) mentioned a 'deeper buffish orange colour' and 'much more with black-brown heavily scaled' veins and being larger than the nomotypical *costata*. The colour is variable from both areas and probably also depends on the state of individual specimens (age, bleached by sun, etc.). Specimens with paler brown and black suffusion on the veins occur sympatrically. There might be some difference in the size, with the majority of the specimens from the Bismarcks being somewhat smaller, but larger specimens occur on the Bismarck Archipelago and smaller ones have been found in New Guinea. Therefore *vivida* Rothschild, 1910 should be considered to be a junior synonym of *costata* Boisduval, 1832.

Diagnosis: The yellow wings with dark veins on the forewings are diagnostic. Male genitalia with valvae broad, from base to apex broadening with an irregular apical rim, cucullus with long apical process and a costal process.

Description: Fwl. ♂ 18.8-20.2, ♀ 26.0-27.8 mm. A conspicuous species with only minor variation (see above). Head, thorax and abdomen dorsally and ventrally yolk-yellow. Antenna with flagellum dark brown and bipectination black, legs dark brown. Abdomen with a row of 4-5 large black dorsal spots and smaller lateral dots, ventrally without dots. Forewings yellow with dark brown to black veins. Suffusion on veins usually does not reach the fringes, except for veins M2 and M3. Hindwings paler yellow than forewings, without pattern. Underside identical to upperside but with brown vein pattern much less pronounced. Male genitalia: (prep. RV 1148, BM 3820) Uncus broad and

beak-shaped. Juxta broadly heart-shaped with a wide 'U'-shaped rim distally. Valvae at both sides symmetrically, narrow based and broadening distally. At the costa of cucullus a triangular inwards folded flap, cucullus distally with a finger-shaped process with slightly inwards curved apex. Apical margin of valva broad and straight but arched at one third in tornus and scarcely covered with setae on the outside. Sacculus distally with a spoon-shaped process. Aedeagus with straight tube, coecum curved upwards and distal part broadened and curved down. Carinae formed by three broadly based sharp teeth. Dorsal lobe of vesica distally with numerous elongated cornutal spines distally transforming to shorter ones, ventral lobe scobinated with tiny cornutal spines. Female genitalia: (prep. BM 6299) Lamella postvaginalis sclerotized and rectangular with a straight apical rim. Lamella antevaginalis divided in two lobes which are distinctly separated in the centre by soft tissue. The two lobes each with rounded ostium rim. Antrum short and sclerotized, at the base stronger sclerotized forming a 'collar'. Cervix bursae slightly sclerotized and curled. Globular bursa copulatrix with two signa, each consisting of a small group of chitinous spikes.

Distribution: The species is rather rare. In Indonesian New Guinea it has been found in the Arfak Mountains, on Numfor Island and more eastward in the Jayapura District and Arso District near the Papua New Guinea border. In Papua New Guinea it is widely distributed through New Guinea to Fergusson Island (D'Entrecasteaux Islands) and the Bismarck Archipelago (New Britain, New Ireland and Duke of York Island). It has been found on altitudes from sea level up to 1500 meters, so it probably prefers lowland and moderate altitudes.

***Spilosoma hypsoides* (Rothschild, 1914)** (Plate 53, figs 2-3; Plate 66, figs 1a-c)

Diacrisia hypsoides Rothschild (1914: 246); Strand (1919: 180)

Spilosoma hypsoides: Thomas (1990a: 183)

Lectotype ♂ BMNH [designated by Thomas (1990a)]: INDONESIA: Ninay Valley, Central Arfak Mts., Dutch New Guinea, 3500 ft, xi.1908-i.1909.

Paralectotypes 2♂♂ BMNH [designated by Thomas (1990a)]: INDONESIA: same as holotype.

Diagnosis: The yellow wings with the oblique antemedian row of black dots are diagnostic. It somewhat resembles species of *Nicetosoma* De Vos, 2011. Male genitalia with valvae broad, from base to apex broadening with an irregular apical rim, cucullus without apical process, only costal



process present.

Description: Fwl. ♂ 24.9-26.3 mm. Male antenna black, bipectinate. Head ochreous, patagia ochreous with a black centre. Thorax black with the sides pale yellow-brown, tegulae of the same colour with a black subbasal dot. Abdomen ochreous with some tiny dorsal dots. Forewing ochreous brown with the veins broadly paler with sand-yellow. From the dorsum a short oblique antemedian row of black dots ending halfway towards apex, in lectotype with some just visible submarginal dots but in other specimens absent. Hindwing yellow with a ochreous tinge basally. In lectotype with a black median dot and two black dots in the tornus, in paralectotypes without spots on hindwing. Male genitalia: (prep. BM 3468) Somewhat resembling *costata*. Uncus tongue-shaped with rather sharp apex and a constricted base. Tegumen long and stretched with a sclerotized membranous rim running behind the base of uncus. Juxta broadly shield-shaped with the stronger sclerotized upper rim concave. Vinculum widely 'V'-shaped. Valvae rather narrow based and distally broadening. Costa of cucullus with broad fold and with at one third a short finger-shaped broadly based process which is folded inwards, apex of process rounded. Apex of valve broad and oblique with irregular undulated rim. Saccus broad with smooth slightly bend rim without process. Aedeagus curved with at carinal plate widening. Carinal plate with two sharp teeth and a group of smaller teeth. Dorsal lobe of vesica distally with a field of small cornutal spines, ventral lobe with a larger field of slightly larger spines.

Sexual dimorphism: Female unknown.

Distribution: So far only known from the Arfak Mountains in Indonesian New Guinea. No recent specimens known.

***fraterna* group**

The *fraterna* group is characterized in the male genitalia by the elongated tegumen and curved rather simple valvae with a spoon-shaped apex. The carinae are not strongly sclerotized and are arranged like saw teeth. Like in the *holobrunnea* group the forewings are brown and have a fine pattern of small blackish dots but not pronounced.

Examples of (undescribed) similar species outside New Guinea are known as far as India and Taiwan. The position of all these species and the possible relation with the *fraterna* group must be investigated.

***Spilosoma fraterna* (Rothschild, 1910)** (Plate 53, figs 4-5; Plate 66, figs 2a-c)

Diacrisia fraterna Rothschild (1910: 145; 1914: 246); Strand (1919: 179)

Spilosoma fraterna: Hampson (1920: 406)

Lectotype ♂ BMNH [designated from syntypes]: PAPUA NEW GUINEA: British New Guinea, Biagi, Mambaré River, 5000 ft, iv.1906, A.S. Meek.

Paralectotype ♂ BMNH [designated from syntypes]: PAPUA NEW GUINEA: same as holotype.

Diagnosis: Broad pale brown forewings with very fine double dots. Stigma spot on forewing broken up in smaller spots. Male genitalia with valvae at base with bulbous peniculus-like structure, apex of valvae spoon-shaped, tegumen long, a short rounded process on sacculus near apex.

Description: Fwl ♂ 20.6-22.6 mm. Male antenna bipectinate, brown. Head and thorax pale brown with pinkish tinge. Palpae and face black, thorax with black dorsal stripe which can be extended to a patch. Underside of thorax ochreous yellow with rose-red pattern on prothorax, legs are black. Abdomen orange-red with lateral and dorsal black stripe, underside of abdomen ochreous yellow. Forewing with pale brown ground colour and with well defined black pattern. Black pattern consists of clear but small dots forming a antemedial transverse line, an oblique medial line formed by small double dots and a row of submarginal and marginal spots. At the costa usually a clear black spot is present antemedially and submarginally. At the end of the cell a stigma spot is present compiled by three or four small black spots. Hindwings brown-yellow to bright yellow, with a well defined black stigma spot and a postmedial row of black spots which may vary from faint to very well defined, sometimes confluent forming a band. Underside of fore- and hindwings pale ochreous yellow with same dark pattern as on upperside but more pronounced. Male genitalia: (prep. RV 1129, RV 1243, RV 1244) Uncus elongated beak-shaped with blunt apex. Tegumen long and stretched with at full length a slightly sclerotized membrane which at base of uncus broadens into a wide and rounded collar behind the uncus. Juxta with the upper half strongly sclerotized with a wide 'V'-shaped rim. Vinculum 'U'-shaped. Base of valve extraordinary elongated along tegumen with at junction of tegumen a bulbous peniculus-like structure, caudally with a thorn. Rest of valve narrow and long, curved inwards. Costa of cucullus without process. Saccus distally with a short rounded process. Apex of valve spoon-shaped with a flat and slightly lobed rim. Aedeagus almost straight, coecum short. Distal part trumpet-shaped and split. Carinal plate with



five sharp saw teeth in a row, distally increasing in size. Vesica entirely scobinated, dorsal lobe with more coarse scobination and some small cornutal spines.

Sexual dimorphism: Female unknown.

Distribution: The species is known from the type locality and other localities in Papua New Guinea in the Central Mountain Range. Recently a male specimen has been found in Pass Valley, Jayawijaya Mountains (Indonesia). This specimen is slightly different from those in PNG, with bright yellow hindwings and with the black costal spots on the forewing lacking. The species is found at altitudes of 1500-2100 meter.

***Spilosoma nana* sp. nov.** (Plate 53, figs 6-7; Plate 67, figs 1a-c)

Holotype ♂ CMWM: Papua New Guinea: Papua New Guinea, Morobe District, Manid Watut, vi.1986, coll. W. Thomas.

Derivatio nominis: The name of the species refers to the small wingspan.

Diagnosis: A small species with obscure pattern on cinnamon brown ground colour. Underside bright ochreous-yellow. Male genitalia with valvae at base with bulbous peniculus-like structure, apex of valvae spoon-shaped, tegumen long, sacculus with extended rim near apex.

Description: Fwl. ♂ 19.4 mm. A small species. Male antenna ochreous-brown, bipectinate. Head with labial palpa and snout black, frons and thorax cinnamon brown, thorax dorsally with a velvet black patch. Palpae, legs and thorax ventrally black. Abdomen rose-red, dorsally and laterally black by confluent dots, caudal part ventrally ochreous-yellow but distally black. Forewing greyish brown with scarce pattern of small black dots antemedially, halfway the dorsum and postmedially. The small marginal spots are the most distinct. Fringes dark yellow. Hindwing orange-yellow with rose-red tinge centrally. A large black median spot and a slightly sinuous row of black postmedial spots. Underside of both wings bright ochreous-yellow with a rose-red tinge on the forewing. Black pattern pronounced and extended, with on forewing a small median spot, a postmedial band, a short row of marginal spots and a streak above the dorsum. Hindwing with a larger median spot, a small costal spot, a complete row of postmedial spots and a streak on the anal vein. Male genitalia: (prep. RV 1245) Resembling *fraterna*. Uncus stretched beak-shaped with blunt apex. Tegumen long with sclerotized broad membrane at the base

of the uncus. Juxta with strongly sclerotized upper half, the rim deeply concave and inside funnel-shaped, lower part broadening and shield-shaped. Vinculum wide and at apex slightly concave. Base of valve elongated and at the joint with tegumen a bulbous peniculus-like structure. Valva long and slender, curved inwards, with spoon-shaped apex. Sacculus near apex with a narrow extended rim. Aedeagus straight, coecum short, distal part strongly broadening with a short split. Carinal plate slightly stronger sclerotized, with two larger teeth distally followed by a row of four small teeth. Vesica with dorsal lobe dorsally with a field of small cornutal spines, ventral lobe scobinated.

Sexual dimorphism: Female unknown.

Distribution: The only known specimen is collected in the Morobe Province, Papua New Guinea.

styx group

Species in the styx group are rather small with short broad wings and a different and diverse wing pattern which more or less resembles that of species in the subgenus *Austrolemyra* Dubatolov, 2005. However, the genitalia do not match with those from *Austrolemyra*. In the male genitalia the valva are short and narrow with bilobed apex and a broad process on the cucullus. The lobes of the vesica are less pronounced and without cornutal spines. The carinal plate is less developed.

The styx group seems endemic in New Guinea.

***Spilosoma reticulata* Rothschild, 1933** (Plate 53, fig. 8; Plate 54, fig. 1; Plate 67, figs 2a-c)

Spilosoma reticulata Rothschild (1933: 177)

Lectotype ♂ BMNH [designated from syntypes]: PAPUA NEW GUINEA: [red circle on round label] Type, Talesea, New Britain, Feb-March 1925, [A.F. Eichhorn].

Paralectotypes 7♂♂ BMNH [designated from syntypes]: PAPUA NEW GUINEA: same as lectotype.

Diagnosis: White wings with a characteristic black pattern, almost filling up the space between the veins which are left white. Dark yellow fringes. Male genitalia with valvae short, apex just reaching middle of tegument, sacculus apically with short broadly based process, carinae a group of conical thorns.

Description: Fwl. ♂ 18.8-20.8 mm. Male antenna black, with short bipectination. Palpae black, head, patagia and tegulae dorsally ochreous yellow but tegulae for the greater part black in the centre and with long orange tufts. Ventrally the head is black, the prothorax ochreous yellow, the rest of the



thorax black as are the legs. Thorax dorsally with a large velvet black patch. Abdomen paler ochreous than thorax and with a rather broad dorsal black stripe compiled of confluent dots, ventrally equally ochreous with two ventro-lateral rows of confluent dots. Forewing cream-white with a heavy black pattern of scattered transverse bands, leaving only the pale ground colour as crosslines and veins. The submarginal row of spots is well developed, almost filling the whole space between the veins. The apical rim of the costa, the fringes and dorsum are dark yellow. Hindwing yellow with fringes dark yellow. A large squarish median spot, usually continued by a incomplete row of small black median spots. The postmedial band consists of a complete row of longitudinal irregular sized black spots running from costa to tornus. Underside identical to upperside but with ground colour of both wings dark yellow. Hindwing with a scattered short median band running from costa to median spot. Male genitalia: (prep. BM 6289) Uncus beak-shaped with a blunt apex. Tegumen and vinculum robustly framed. Juxta with caudal part (near vinculum) broadly shield-shaped, the distal part (near transtilla) a 'V'-shaped construction. Valvae short and narrow based. Sacculus distally with a broad costal process with rounded apex, and an apical lobe next to a second apical lobe on the sacculus which is covered with numerous setae distally. Aedeagus slightly curved with a upbend coecum and a broadening distal part. Carinal plate with an isolated group of sharp conical thorns, directed distally. Vesica with scobinated fields but without cornutal spines. The vesical lobes not clearly defined.

Sexual dimorphism: Female unknown.

Distribution: The species has only been found on New Britain, Bismarck Archipelago, on the type locality Talesea.

***Spilosoma styx* (Bethune-Baker, 1910)** (Plate 54, figs 2-4; Plate 68, figs 1a-c)

ssp. *styx* (Bethune-Baker, 1910)

Diacrisia styx Bethune-Baker (1910: 443); Rothschild (1914: 248); Strand (1919: 228)

Spilosoma styx: Hampson (1920: 412)

ssp. *albistriga* Talbot, 1929

Spilosoma styx albistriga Talbot (1929: 88)

Holotype *Spilosoma styx* ♂ BMNH: INDONESIA: Dutch New Guinea, Ninay Valley, Arfak Mountains, 3600 ft, xi.1908-i.1909, leg. A.E. Pratt.

Holotype *Spilosoma styx albistriga* ♂ BMNH: INDONESIA: Dutch N.Guinea, Nomnagihé, 25 miles south of Wangaar, 2000 ft., i-ii.1921, C.F. & J. Pratt.

Paratypes 2♂♂ BMNH: INDONESIA: same as holotype.

Diagnosis: The black wings with some white patches at dorsum and submarginally, and the thin white veins are diagnostic. Male genital with valvae short, apex just reaching middle of tegument, sacculus apically with long narrow based process, carinal plate with one thorn.

Description: FwL. ♂ 18.4-20.7 mm. Probably the most conspicuous species to recognize. Head and thorax orange, palpa black. Antenna black, in male bipectinate. Orange tegulae with a velvet black dot at the forewing base, underside of head and thorax black except for a tuft of orange just below the forewing base. Abdomen dorsally velvet black but with an orange distal end, ventrally with the six middle sections white. Forewing in the nomotypical subspecies blackish brown with the veins white and with a white patch in the centre of the dorsal area and with a white 'V'-shaped band in the submarginal area, not reaching costa and termen. In subspecies *albistriga* these white patches are much larger, the submarginal 'V'-shaped band is much wider and reaching the termen and with a white streak in the tornus. Hindwing in the nomotypical subspecies blackish brown and almost without white pattern except for a white tornal spot in the margin and fringes. Subspecies *albistriga* with the hindwing crossed by white veins and with scattered white spots in the tornus, below the apex and in the centre of the wing. Underside of wings black with only white pattern of significance in the apical area of the forewing, a white moon crescent around the apex. Furthermore some traces of white in the antemedial area of both wings. Male genitalia: (prep. RV 1161) Uncus stretched and rather narrow beak-shaped with a blunt apex. Tegumen without distinct sclerotized membrane at the base of uncus as seen in other species. Juxta very large, shield-shaped with a strong widely 'V'-shaped upper rim. Vinculum wide and rather large. Valva short and narrow and curved inside. Cucullus with folded costa without process, at bilobed apex extended into a broad rounded costal lobe. Distal rim of apex irregular concave to a sharp second lobe. Sacculus distally with a curved finger-shaped process with rounded apex. Deeply concave rim between valve apex and sacculus process with long setae. Aedeagus short and straight, distally bend down and with a short wide split. Small carinal plate granulated and at distal corner with a strongly sclerotized thorn accompanied by some tiny teeth. Vesica widely scobinated, dorsally less dense but more coarsely.

Sexual dimorphism: Female unknown.

Distribution: This rare species is only known



from three different localities. The type locality is in the Arfak Mountains, but one specimen is known from the Waris area, south of Jayapura near the PNG border, and has the same appearance. Subspecies *albistriga* is known from the area near Nabire. This strange disjunction of populations indicates that the definition of the subspecies could be very weak and probably will not hold when more material of other localities will become available.

***persimilis* group**

The group is characterized by rather small to medium sized species with short and broad pale to dark brown forewings and more or less rose-red hindwings with rather strong pattern. They resemble species from the oriental genus *Eospilarctia* Kôda, 1988 but the genitalia are different. The vesica of the aedeagus is characterized by the deep ventral lobe which is covered with short cornutal spines. The carinae are usually grouped conical short teeth. The valvae are rather long with a process on cucullus and sacculus.

The *persimilis* group is restricted to New Guinea. As mentioned above there are some similar looking species outside New Guinea but genitalia research of those so far prove a different position.

***Spilosoma enarotali* sp. nov.** (Plate 54, figs 5-8; Plate 68, figs 2a-c; Plate 76, figs 2a-b)

Holotype ♂ KSP: INDONESIA: Irian Jaya, Enarotali, 24-27.ii.2000, leg. HM [H.J.M. van Mastrigt].

Paratypes 15 specimens: INDONESIA: 1♀ KSP: Irian Jaya, Enarotali, 3.vii.1975 [leg. H.J.M. van Mastrigt]; 2♀♀ RMNH: Ned. Nieuw Guinea, Paniai, 10-11.ix.1939 [1♀], 14.ix.1939 [1♀], leg. Dareli, KNAG Expeditie 1939; 5♀♀ RMNH: Ned. Nieuw Guinea, Araboebivak, 12.ix.1939 [1♀], 5.x.1939 [1♀], 6.x.1939 [2♀♀], 15.x.1939 [1♀], KNAG Expeditie 1939.

Derivatio nominis: The species is named after the type locality Enarotali, the most important village of Kabupaten Paniai.

Diagnosis: The short brown forewings with the dark bar on the cubital vein and dark submarginal spots is characteristic. Vesica of aedeagus in male genitalia with deep ventral lobe covered with cornutal spines, carinal plate with one row of about three teeth.

Description: FwL ♂ 19.0 mm, ♀ 19.7-22.1 mm. Antenna of male bipectinate. Antenna, head and thorax of male brown with a black collar, at underside head black. Thorax at underside ochreous yellow mixed with rose-red and black pattern, legs black. Abdomen rose red with black dorsal stripe.

Forewings rather short with straight costa. Ground colour brown with black pattern. Most conspicuous pattern on forewing is a black bar on the distal half of the cubital vein in the centre of the wing. Furthermore a black antemedial dot at the costa and a row of submarginal black spots. Hindwing brown-yellow with a rose tinge, particularly in the dorsal area. A medial stigma spot and three submarginal spots present but rather faint. Underside with ground colour ochreous yellow, forewing in the cell and at the dorsum with rose-red. Black pattern at underside totally different than upperside, like in other *Austrelemyra* species forewing with a broad black postmedial band and a median spot, connected by a black bar along the cubital vein. Marginal area ochreous yellow. Underside hindwing ochreous yellow with black pattern as upperside but much more pronounced. Male genitalia: (prep. ksp 23026) Similar to *grandimacula* sp. nov. Uncus broadly beak-shaped, dorsally slightly arched covered with setae, sharply pointed apex bend down. Tegumen long and stretched with at base of uncus a slightly sclerotized broad membrane which runs behind the uncus as a collar. Juxta jar-shaped with concave upper rim strongly sclerotized. Vinculum deep and 'U'-shaped. Base of valve at junction with tegumen a ribbon-shaped peniculus-like structure. Cucullus halfway with broad finger-shaped costal process with rounded apex. Valva broadening at sacculus into a finger-shaped process with a rounded apex. Both processes at an angle of 90° with valve. Distal half of cucullus narrow and at rounded apex curved inwards. Aedeagus curved, coecum short and slightly curved upwards. Distally widening and split. Carinal plate strongly sclerotized with two coarse thorns and three smaller ones being blunt and knobble-like in a row (in *grandimacula* with sharp teeth). Vesica with lobes rather shallow, dorso-distally with a field of tiny scobination, large ventral lobe ventrally covered with small cornutal spines.

Female with antenna simple, almost filiform. Antenna, head and thorax brown, without black collar. Abdomen rose red with black dorsal stripe. Forewing with costa arched in the distal third. Ground colour brown with a faint blackish pattern. Usually with the distal end of cubital vein black which runs shortly towards CuA1, M3 and M2, in some specimens without this pattern. Sometimes a medial costal spot present, as well as a submarginal spot and always with a row of submarginal spots, but all the pattern is rather faint. Hindwing brown-yellow to pale brown, usually with a medial stigma spot and three submarginal spots, all faintly visible. Female



genitalia: (prep. RV 1328) Segment VIII strongly arched and excavated around the genital area. Lamella postvaginalis slightly sclerotized with an irregular apical rim. Lamella antevaginalis partly and only slightly sclerotized, almost rectangular with an irregular concave ostium rim. Basal third of antrum less sclerotized and separated by a broad node from the stronger sclerotized caudal two-third. Cervix bursae slightly sclerotized and curled apically, followed by a rather small globular bursa copulatrix without signum. Appendix bursa globular, about half the size of the bursa copulatrix.

Variation: Especially in the females there is some variation in the dark pattern. In some specimens the only pattern on the forewing can be the row of submarginal spots. The hindwings in such cases without a stigma spot and with small submarginal spots.

Distribution: The species seems restricted to the Paniai area (Papua, Indonesia), East of the Weyland (Kobowre) Mountains.

***Spilosoma grandimacula* sp. nov.** (Plate 55, figs 1-4; Plate 69, figs 1a-c)

Holotype ♂ KSP: INDONESIA: Indonesia, Irian Jaya, Puncak Jaya, Sugapa, Bilogai, 3°44' S – 137°02' E, 2100 m, 18-20.xii.2001, H. van Mastrigt [KSP].

Paratypes 2♂♂ CMWM: PAPUA NEW GUINEA: 1♂, Papua New Guinea, Morobe Province, Kwaimunga, 2.i.1988, coll. W. Thomas; 1♂, Papua New Guinea, Morobe Province, Patianda Watut, 1700 m, vi.1987, ex coll. Dr. W. Thomas.

Derivatio nominis: The name of the species is derived from its large markings, especially on the hindwing.

Diagnosis: Typical specimens have dark-grey forewings with a sooty appearance and with large black squarish costal markings. Ground colour of costa usually pale. Vesica of aedeagus in male genital with deep ventral lobe covered with cornutal spines, carinal plate with two rows of at least five teeth.

Description: Fwl. ♂ 20.0-21.0 mm. Male antenna long bipectinate. Antenna, head and thorax chocolate brown, also on underside, thorax at underside mixed with some rose-red hairs. Abdomen rose-red with a dorsal black stripe or confluent dorsal dots and a narrow black band on the last segment, at underside the abdomen is ochreous yellow. The forewing rather short with a brown ground colour which can either be sooty dark grey or pale brown with sooty fields. At the costa the wing colour is paler. Four distinct squarish costal black

markings (subbasally, antemedially, median and submarginally) mark the most accentuated part of the faint strongly curved black transverse bands. Marginally a faint row of dots is visible. Hindwings rose-red with heavy black pattern, a large median patch, sometimes with an extension into a median line, and the large submarginal spots partly confluent forming a dark submarginal band. Underside of wings rose-red with black pattern like upperside and with the submarginal field sooty grey. Four distinct costal spots. Hindwing at underside with pronounced black pattern and a conspicuous large black median spot. The black pattern can be very strong, almost darkening the entire underside. Male genitalia: (prep. RV 1241, ksp 23091) Similar to those of *enarotali*. Uncus broadly beak-shaped, almost triangular, with a blunt apex. Tegumen at base with uncus a wide rounded sclerotized membrane running behind the uncus as a collar. Base of valve with at joint with tegumen a broad ribbon-shaped peniculus-like structure with stronger sclerotized apex. Juxta heart-shaped with sclerotized concave upper rim. Vinculum deep 'U'-shaped. Valva broadening in the middle and narrowing apex slightly curved inwards. Cucullus with at two-third a flat and rounded lobe, sacculus half-way with a slender finger-shaped process at an angle of 90° with valve. Apex of valve with a short thumblike process. Aedeagus short, slightly curved with evenly broad coecum. Distally broadening and split. Carinal plate with about five sharp teeth distally increasing in size (in *enarotali* blunt knobbls). Vesica with shallow lobes, dorso-distally with a field of tiny scobination, ventral lobe deep, ventrally covered with small cornutal spines.

Sexual dimorphism: Female unknown.

Variation: The ground colour of the forewing can vary from sooty black-brown to pale ochreous brown. In paler specimens the dark pattern is much better visible but still not sharp, though the postmedial and submarginal spots are well defined. Hindwings in paler specimens faded yellow with a rose-red tinge. Black pattern on hindwings as in darker specimens except for the thin medial band which is absent.

Distribution: Probably a mountain species and very local. In Papua, Indonesia, it is only known from Bilogai, North of the Sudirman Mountains. In Papua New Guinea it was found in Kwaimunga, Bulolo-Wau Valley in Morobe District.

***Spilosoma mastrigti* sp. nov.** (Plate 55, figs 5-8; Plate 56, figs 1-2; Plate 69, figs 2a-c; Plate 77, figs 1a-b)



Diacrisia persimilis: Rothschild (1914: 246) [in part]

Holotype ♂ ZMAN: INDONESIA: Irian Jaya, Abmisibil, 17.ix.1985, HvM [H.J.M. van Mastrigt].

Paratypes 29♂♂, 20♀♀): INDONESIA: 2♂♂, 6♀♀ ZMAN: Irian Jaya, Star Mountains, Abmisibil, 1890 m, 27.ii.1.iii.1989, H. v. Mastrigt; 1♂, 1♀ ZMAN: Irian Jaya, Star Mountains, Abmisibil, 1850 m, 9-12.xi.1990, H.J.G.[= H.J.M.] v. Mastrigt; 1♂, 1♀ ZMAN, 1♀ BMNH: Indonesia, Papua, Star Mountains, Abmisibil, 1970 m, 4° 40' S – 140° 34' E, 29.xi-3.xi.2001, H.J.M. van Mastrigt; 1♂, 1♀ ZMAN: Indonesia, Papua, Star Mountains, Abmisibil, 4° 40' S – 140° 34' E, 1970 m, 29.i-9.ii.2005, UNCEN-ZMAN Expedition 2005; 1♀ ZMAN: Indonesia, Irian Jaya, Pass Valley, 49 km N Wamena, 2140 m, at light, 25.x.1993, A.J. de Boer, A.L.M. Rutten & R. de Vos, 1♂, 1♀ ZMAN: Indonesia, Papua, Kecamatan Abenaho, Pass Valley, 1950 m, 3° 51' S – 139° 05' E, 11-17.ii.2005, at light, cultivated area/disturbed montane forest, UNCEN-ZMA Expedition, Papua Indonesia 2005; 1♂ ZMAN: Indonesia, Papua, Kecamatan Nipsan, Walmak, 1710 m, 4° 07' S – 138° 38' E, 30.v-4.vi.2000, H.J.M. van Mastrigt; 2♀♀ ZMAN: Irian Jaya, Abmisibil, 2000 m, 19.viii.1984 [1♀], 24.viii.1984 [1♀], HvM [H.J.M. van Mastrigt]; 3♂♂, 2♀♀ ZMAN, 1♂ BMNH: Irian Jaya, Abmisibil, 17-19.vii.1987, HvM [H.J.M. van Mastrigt]; 1♀ ZMAN: Irian Jaya, Star Mts., Abmisibil, 1850 m, on light, 11-21.iii.1988, HvM [H.J.M. van Mastrigt]; 1♀ ZMAN: Irian Jaya, Timeepa, 1200 m, 24.v.1984, HvM [H.J.M. van Mastrigt] 1♂ BMNH [syntype *Diacrisia persimilis* Rothschild, 1914]: Cent. D.N. Guinea, Mt. Goliath, 5-7000 ft., [i-ii.1911], [A.S.] Meek, Joicey Bequest. Brit. Mus., 1934-120; 8♂♂ KSP: Irian Jaya, Peg. Bintang, Okbibab, Abmisibil, 1850 m, 28.viii.1984 [2♂♂], 9.ix.1985 [1♂], 10.ix.1985 [1♂], 11.ix.1985 [1♂], 15.ix.1985 [1♂], 22.x.1986 [1♂], 9-13.xi.1990 [1♂], H.J.M. van Mastrigt; 4♂♂ KSP: Irian Jaya, Langda, 1850 m, 25.xi.1988, HM [H.J.M. van Mastrigt]; 2♂♂ KSP: Langda, 1950 m, 3-5.ii.1997, HM [H.J.M. van Mastrigt]; 1♂ KSP: Irian Jaya, Puncak Jaya, Ilaga, 2150 m, 25.xi.1988, HM [H.J.M. van Mastrigt]; 1♀ RMNH: Ned. Nw. Guinea, Molbakon, 5.ix.1959, leg. C.B. Nicolas, Ned. Nieuw Guinea Expeditie 1959; PAPUA NEW GUINEA: 1♂ BMNH: British New Guinea, Saiko, Bubu River, Upper Waria River, 5500 ft, x-xi.1936, F.S. Mayer; 1♂ CMWM: Papua New Guinea, Gumi, vi.1986, coll. W. Thomas].

Note 1: One male in the syntype series of *Diacrisia persimilis* Rothschild, 1914 (not designated as lectotype by Thomas, 1990a) in the collection of BMNH appeared to belong to *Spilarctia mastrigti* and is included in the paratype series (see above).

Note 2: Pale specimens occur which are quite easily separated from the darker typical phenotype. However, the genitalia show no significant difference to justify the

designation of a new species. The pale specimens are considered to be colour forms which occur sympatric with the darker ones. To avoid possible misidentifications the paler specimens are not included in the type series.

Derivatio nominis: The species is named in honour of Br. H.J.M. (Henk) van Mastrigt. Henk has dedicated his life in New Guinea to the Catholic mission and with equal devotion to the Lepidoptera of New Guinea. His knowledge about the Lepidoptera fauna, the area, the customs and the local people is of great importance to biology students, visitors and science. Henk collected many of the above mentioned types of the species, including the holotype.

Diagnosis: Medium sized species with greyish forewings and with usually two brown distinct transverse lines and a conspicuous comma-shaped stigma spot. Vesica of aedeagus in male genital with deep ventral lobe covered with cornutal spines, process on sacculus halfway valvae length, sacculus with short process with rounded apex, apical process of cucullus long.

Description: Fwl. ♂ 18.5-21.9 mm., ♀ 21.3-24.6 mm. Male antenna with rather long bipectination, dark grey-brown. Head and thorax dark brownish grey, patagia and tegulae slightly darker. Palpae and ventral side of head black. Thorax ventrally dark brown, legs black except for the outside of the tibia of the forelegs which are rose-red. Abdomen brick-red with a variable black dorsal band which may be separated as dots or patches on each segment. Abdomen laterally black alternated with paler grey-brown, at the underside dark brown, ventrally dark grey-brown, sometimes with traces of yellow but never extensively. Forewings brownish grey, with two distinct dark brown transverse lines: a antemedial line with a strong curve in the middle and a faintly 'S'-shaped median line. At the costa and dorsum the transverse lines are strongly accentuated with black. The cell with a dark brown comma-shaped stigma patch which is black at the lower part. A small submarginal black spot and a complete row of black submarginal spots is present. Hindwings usually pale rose-red, in some specimens rose-brown to brownish grey. The median spot very strong and comma-shaped. Usually a median black line is present as well as a row of large submarginal spots. The fringes may be suffused with black. Underside with the basal half rose-red and the distal half grey covered with grey-brown scratches. Black pattern pronounced with the median band almost always complete on



both wings and the postmedial band more or less developed. Costa of forewing grey-brown. Under-side of both wings with basal half rose-red, much paler on hindwing, distal half pale buff with scarce greyish scaling. Black pattern pronounced but variable. Always present is a conspicuous postmedial band, a large comma-shaped median spot, which may be confluent with the latter, a black streak above the dorsum, four distinct black costal spots (the apical spot may be small) and a row of submarginal spots which does not reach the tornus. The hindwings with a large comma-shaped median spot, large costal spot and some postmedial spots. There is no median line present. Male genitalia: (prep. RV 1142, RV 1143, RV 1144, RV 1145, RV 1252, BM 3836 [on slide label saying '*Spilosoma persimilis*']) Very similar to *transversa* and certainly closely related. Uncus broadly beak-shaped with rather sharp apex. Tegumen with sclerotized membrane running behind base of uncus. Juxta shield-shaped with concave upper rim more sclerotized. Vinculum wide and deep. Valva rather short and broadly based. Costa of cucullus with a short spoon-shaped process at two-third length of cucullus. Sacculus with short broadly based dorso-ventrally flattened process halfway valvae length with rounded apex. Slender distal part of valve apically slightly bend inwards, apex rounded and laterally flattened. Aedeagus rather short and slightly sinuous, distally broadening with a deep split. Carinal plate strongly sclerotized and almost isolated with a row of four blunt teeth increasing in size distally and two parallel rows of tiny conical teeth. Vesica with ventral lobe long and ventrally widely covered with tiny conical cornutal spines. Dorsally and in the middle part very fine scobinated.

Female antenna almost filiform but very short dentated, greyish brown. The wing pattern similar as in male but without distinct black pattern on forewings, the brownish transverse lines may be reddish brown. The black pattern on the hindwings, however, is usually well developed, with a complete black median line, postmedial spots and a large comma-shaped median spot. The pale rose-red hindwings at the margin somewhat dirty suffused with dark brown scaling. Female larger with broader wings and more rounded wing apex. Head with frons grey, thorax dark brown but towards metathorax with increasing grey hairs. Abdomen first two segments orange, others bright rose-red, with dorsal and lateral black dots. Forewings pale greyish brown, dark pattern faint but with conspicuous comma-shaped median spot and a row of submarginal spots except, like in male, in the tornal

area. Orange coloured antemedial and median line complete but faint, at the costa suffused with black. Hindwing pale rose-red mixed with some orange. Black pattern prominent with a large comma-shaped median spot, a sinuous median line and a few large postmedial spots. Female genitalia: (prep. RV 1329) Segment VIII cone-shaped, not arched. Lamella postvaginalis slightly sclerotized, somewhat wrinkled with a protruding blunt apical rim. Lamella antevaginalis shield-shaped with a smooth rounded ostium rim, in the centre of the rim with a remnant of a suture line. Sclerotized antrum broadly based, caudally stronger sclerotized. Cervix bursae large and 'S'-shaped running to a large unsclerotized globular appendix bursa which is almost equally sized as the globular bursa copulatrix. No signum present.

Variation: Pale coloured specimens occur rather common. They resemble more or less *persimilis*, but with more sooty suffusion on the wings and usually with a very dark head and thorax. Head and first half of thorax dark brown to black, palpal black, distal half of thorax chocolate brown, ventrally thorax dark brown mixed with dark rose-red patches, legs black. Abdomen rose-red, somewhat suffused with dark brown hairs and with black confluent dorsal dots in a row, usually forming a continued band, ventrally buff but laterally black. Groundcolour of forewing pinkish yellow with sooty suffusion, particularly at the base of dorsum. At the costa three large squarish antemedial, medial and postmedial patches, with only the antemedial and medial transverse line weakly and sinuous running towards dorsum. Postmedial line very incomplete, usually only represented by some small black dots and with a row of submarginal dots except in the tornal area. The postmedial transverse line at the underside very broad and well developed and visible through the wings at the upperside. Hindwings rose-red with some yellowish tinge at the dorsum. Black central stigma patch large and with black postmedial dots of variable size and number. Apical fringes in hindwing black.

Distribution: A true mountain species which is common in the Central Mountains of Papua, Indonesia, and is found at altitudes between 1200-2150 meters. Localities known so far in Papua are from West to East: Sudirman Mountains: Ilaga; Jayawijaya Mountains: Timeepa, Jiwika (Baliem Valley), Pass Valley, Walmak; Star Mountains: Langda, Mt. Goliath (Gn. Yamin), Abmisibil, Molbakon. Only two records are known from Papua New Guinea, Gumi (CMWM) and Waria River (BMNH). It is to be expected that more localities will be found after thorough



research in the eastern part of New Guinea.

***Spilosoma novaeguineae* (Rothschild, 1913)**

(Plate 56, figs 3-4; Plate 70, figs 1a-c)

Ardices novaeguineae Rothschild (1913: 278);
Strand (1919: 160)

Spilosoma novaeguineae: Hampson (1920: 408)

Holotype ♂ BMNH: Papua New Guinea: Deutsch Neu Guinea, Bolauberg, 2600 m, [no date], Keysser Coll.

Note: The original locality label is lost, only a label with '2600 m' remains. The type locality information is taken from the original publication of Rothschild (1913).

Diagnosis: A rather small species with yellow forewings which is extensively covered with black pattern, leaving yellow spaces at costa, dorsum and between transverse lines and on veins. Hindwing for the greater part covered with black. Male genitalia with vesica of aedeagus in male genital with deep ventral lobe covered with cornutal spines, process on sacculus at two-third of valvae in apical part.

Description: Fwl. ♂ 17.1 mm. Male antenna dark brown, bipectinate. Head orange-brown with on frons long ochreous hairs, palpal basally ochreous, apically black. Thorax dorsally ochreous orange with black patch, prothorax ventrally dark brown, meso- and metathorax ventrally mixed with rose-red and ochreous orange, forelegs at inside of femur rose-red, outside of this femur and other legs ochreous brown with joints suffused with black. Abdomen pale rose-red, dorsally with a black longitudinal band, ventrally ochreous orange. Forewing ochreous-yellow with extended black pattern. Major parts at costa and dorsum still yellow, as well as venation, fringes and the central space between cubital vein, CuA2 and A2+3 and a fine line in the cell. Black sinuous postmedial line and confluent submarginal spots guided by yellow of ground colour. Hindwing basically rose-red, but for the greater part suffused with blackish grey, except for the dark yellow costa, fringes and a pale postmedial line from costa to tornus. The black median spot is just visible. Underside with dark pattern identical to upperside but less pronounced and with rose-red colour in the centre of both wings. Male genitalia: (prep. BM 6260) Uncus broadly beak-shaped with blunt bend down apex, dorsally with a shallow gutter. Tegumen long. Juxta widely trapezium-shaped with concave upper rim more sclerotized. Vinculum large and ovate. Valva broadly based, cucullus halfway with short finger-shaped costal process with rounded apex, sacculus distally with short triangular process with rounded apex. Apex of valve spoon-shaped with flat and undulated rim.

Aedeagus straight, coecum short. Carinal plate almost isolated and strongly sclerotized with one large tooth followed by a smaller one and a group of tiny teeth. Vesica long with ventral lobe most developed, ventrally covered with tiny cornutal spines, a field of even smaller spines in the middle part distally.

Sexual dimorphism: Female unknown.

Distribution: The only specimen known is found in the northern part of Papua New Guinea (former German New Guinea).

***Spilosoma persimilis* (Rothschild, 1914)** (Plate 56, figs 5-7; Plate 70, figs 2a-c; Plate 77, figs 2a-b)

Diacrisia persimilis Rothschild (1914: 246); Strand (1919: 210)

Spilosoma persimilis: Hampson (1920: 405); Thomas (1990a: 181)

Lectotype ♂ BMNH [designated by Thomas (1990a)]: INDONESIA: 118, Central Dutch New Guinea, Mt. Goliat, about 139° long.[itude], 5-7000 ft, ii.1911, leg. A.S. Meek.

Note: One male in the syntype series of *Diacrisia persimilis* Rothschild, 1914 (not designated as lectotype by Thomas, 1990a) in the collection of BMNH appeared to belong to *Spilarctia mastrikti* and is included in the paratype series of *mastrikti*. The other specimens in the series presented in the BMNH collection is a mix of *mastrikti* and *persimilis* and needs reidentification.

Furthermore 13♂♂ and 1♀ in the syntype series which were not designated as paralectotypes by Thomas (1990a) but see note above.

Diagnosis: Small species with short wings, ground colour buff or sand yellow and in male without sprinkling of dark scales. Most conspicuous are the dark costal patches and stigma spot. Male genitalia with vesica of aedeagus in male genital with deep ventral lobe covered with cornutal spines, carinal plate with large coarse blunt knobles.

Description: Fwl. ♂ 17.1-19.4 mm., ♀ 19.7-20.7 mm. Male antenna dark brown, bipectinate with rather long pecten. Head and thorax pale brown to blackish brown, pale specimens still have a black rostrum and a black dorsal patch on the thorax which might be partly covered by pale brown thoracic hairs. Palpal and ventral side of head and thorax dark brown, in the centre mixed with paler grey-brown hairs. Legs black, forelegs with inside of femur brightly rose-red. Abdomen rose-red with a black dorsal stripe, the last segment with a black transverse band, ventrally ochreous yellow with lateral black stripes. The forewing with the ground



colour sand-yellow, not heavily sprinkled with black scales like in the similar and closely related *mastrigti*, but the blackish pattern from the underside is shimmering through the wing in the postmedial and median field. Costa of forewing with four more or less squarish patches: subbasally a narrow one, the antemedial, median and postmedial patch more developed. The antemedial and median patch usually connected to a sinuous reddish brown transverse line, in some heavy patterned specimens accompanied by more black spots. The postmedial band can be complete with a row of black dots or either be reduced to just one small postmedial costal spot. Usually a row of black submarginal dots is present. Underside of forewing for the greater part rose-red with a pale buff coloured base and grey-brown apical third. This apical part is sprinkled with dark grey-brown scales. Black pattern on underside much more extended with as most distinguishing character that the median and submarginal bands are usually connected on the cubital vein. Submarginal dots are also distinctly present on the underside. Hindwing yellow with a rose-red tinged centre, patterned with large black spots: a costal spot, a medial comma-shaped stigma spot and a row of at least five postmedial spots. Underside of hindwing pale yellow with a rose-red tinge, especially in the basal area. Submarginally sprinkled with dark grey-brown scales. Black pattern extended resulting in large postmedial dots, a large comma-shaped median spot and a triangular costal spot. Male genitalia: (prep. RV 1139, RV 1140) Similar to *mastrigti*. Uncus broadly beak-shaped with blunt apex, dorsally arched. Tegumen with narrow sclerotized membrane, at base of uncus broader and running behind it. Juxta shield-shaped with stronger sclerotized upper rim widely concave. Vinculum widely 'U'-shaped. Valva broadly based. Cucullus with folded costa and a thumb-shaped process which is larger than those of *mastrigti*. Sacculus distally with thumb-shaped process, at an angle of 45° with valve, which is longer and thicker than in *mastrigti*. Apical part of valve much broader than in both mentioned other species with a spoon-shaped bend-down rounded apex. Aedeagus slightly curved with distal part broadening and with a deep split. Carinal plate stronger sclerotized and almost isolated, at the rim with three coarse blunt teeth followed by some smaller ones. Vesica with deep ventral lobe and ventrally covered with small conical spines, dorsally two scobinated fields. Female genitalia: (prep. RV 1340) Segment VIII cone-shaped, not arched. Lamella postvaginalis slightly sclerotized, somewhat wrinkled with a protruding rounded api-

cal rim which is split by a central suture line. Lamella antevaginalis shield-shaped with a deeply 'V'-shaped ostium rim with rounded lobes. Sclerotized antrum with a node at one third, caudally stronger sclerotized and slightly broadening. Cervix bursae large and '8'-shaped running to an unsclerotized globular appendix bursa which is almost half size the globular bursa copulatrix. No signum present.

Distribution: A species which is found at higher altitudes in the Central Mountain Range of Indonesian New Guinea, from Bilogai (Sudirman Mts.) in the West to Abmisibil (Star Mts.) in the East. It is to be expected that the species also occurs in the western mountains of Papua New Guinea.

***Spilosoma transversa* sp. nov.** (Plate 56, fig. 8; Plate 57, fig. 1; Plate 71, figs 1a-c)

Holotype ♂ CMWM: PAPUA NEW GUINEA: Papua New Guinea, Morobe District, Kuper Range, Primärwald, 7,50426° S – 146,80379° E [=7°30'S–146°48'E], 2226 m, 28.i.2005, leg. M. Hoffmann.

Paratypes 12♂♂ KSP: INDONESIA: 1♂: Indonesia, Irian Jaya, Kabupaten Yahukimo, District Nipsan, Walmak, 1550 m, 7-10.iii.1994, H. van Mastrigt; 6♂♂: Indonesia, Irian Jaya, Puncak Jaya, Sugapa, Bilogai, 3°44' S – 137°02' E, 2100 m, 18-20.xii.2001, H. van Mastrigt; 3♂♂: Indonesia, Irian Jaya, Kecamatan Abenaho, Pass Valley, 1850 m, 13-20.v.1999, H. van Mastrigt; 2♂♂: Indonesia, Irian Jaya, Centr. Bergland, Ilaga, 2150 m, on light, 19.v.1988, HvM [H.J.M. van Mastrigt].

Derivatio nominis: The species is named after its conspicuous transverse bands which give it a characteristic appearance.

Diagnosis: In the *persimilis* group the largest species, with characteristic dark transverse bands. Male genitalia with process on sacculus halfway valvae length and with sharp apex, apical process of cucullus shorter than *mastrigti*.

Description: Fwl. ♂ 18.0-20.2 mm. This species resembles more or less *mastrigti* and *grandimacula* but with much more pronounced black pattern. Male antenna bipectinate, pale brown dorsally, ventrally black. Palpae black. Rostrum dark grey-brown, frons and ventral side of head black, in some specimens frons also grey-brown. Holotype with tegulae at base black and at the margins broadly grey-brown, in some paratypes the entire thorax dorsally grey-brown. Thorax ventrally black, in some specimens mixed with some grey-brown. Forelegs with femur basally rose-red and greyish haired, knees and rest of this and other legs black. Abdomen scarlet red with black dorsal and lateral confluent patches, ventrally buff to greyish.



Forewing with ground colour buff, crossed by black curved transverse antemedial, median and post-medial bands. A thick black squarish median spot at the end of the cell and a row of black submarginal spots present. The entire forewing sprinkled with black scales. Hindwing with basal two-third pale rose-red, fading to buff towards the margins. A large dark grey-brown squarish median patch and two more or less complete median and submarginal sinuous bands of the same colour. Marginal area sprinkled with black scales. Underside of forewing pinkish buff, basal half of forewing rose-red, with extreme pronounced black pattern. Most conspicuous on the forewing are the broad black median and postmedial band, sometimes connected with a broad black bar running in the space between vein A2+3 and CuA2. Marginal area of forewing sprinkled with dark grey scales which in some specimens (i.e. holotype) can be quite dense and extended to the entire wing. Hindwing pale salmon to pinkish buff. Black median spot large and conspicuous. Most specimens with dark grey speckles restricted to dorsal and marginal area but in holotype extremely dense and extended through the entire wing. Median band well developed, row of submarginal spots in most species complete and confluent. Male genitalia: (prep. RV 1250) Very similar to *mastrigti* and certainly closely related. Uncus broadly based and apically narrowing with a blunt apex. Tegumen long and stretched with at base of uncus a sclerotized rounded membrane. Juxta basally broad shield-shaped, distally heart-shaped and stronger sclerotized with rounded 'V'-shaped rim. Vinculum widely 'U'-shaped. Valve rather broad, cucullus broadly folded with halfway a broadly rounded short process. Apical part of valva stretched and with rounded apex. Sacculus with broadly based process with sharp apex. Rim between valve apex and sacculus process with setae. Aedeagus curved with broadened distal part and with wide deep split. Carinal plate stronger sclerotized with a group of blunt teeth of which the most distal one is the largest. Vesica scobinated and dorsally with a field of tiny conical cornuti, deep ventral lobe ventrally densely covered with short cornutal spines.

Sexual dimorphism: Female unknown.

Distribution: The species is widely distributed in the Central Mountain Range throughout New Guinea from the Baliem Valley to the Morobe District in PNG. It is found at higher altitudes from 1500 – 2200 meters.

***Spilaethalida* Dubatolov, De Vos et Daawia, 2007**

The genus *Spilaethalida* is characterized by the conspicuous wing pattern of black squarish patches arranged in oblique rows and the pale costa of the forewing. The male genitalia are rather simple with slender and strongly curved valvae without any process. The aedeagus vesica has the dorsal and vertical lobes elongated, the vertical one being almost trunk-shaped. The carinae form a ridge of short blunt teeth.

The genus is represented on New Guinea and some smaller islands in the Bismarck Archipelago and Trobriand Island.

***Spilaethalida turbida* (Butler, 1882)** (Plate 57, figs 2-7; Plate 71, figs 2a-c; Plate 77, figs 3a-b)

ssp. *turbida* (Butler, 1882)

Spilarctia turbida Butler (1882: 158)

Spilosoma turbida: Meyrick (1889: 466)

Diacrisia turbida: Hampson (1901: 315) in part; Strand (1919: 230), Eecke (1924: 45)

Diacrisia turbida turbida: Rothschild (1910: 145; 1914: 247)

Spilaethalida turbida: Dubatolov et al. (2007: 326)

Diacrisia turbida sordidior Rothschild (1910: 146; 1914: 247); Strand (1919: 231) **syn. nov.**

Diacrisia sordidior: Hampson (1920: 417)

Diacrisia turbida montana Rothschild (1910: 145; 1916: 333) **syn. nov.**

Spilosoma turbida montana: Hampson (1920: 417)

Diacrisia turbida alpina Rothschild (1914: 247); Strand (1919: 231) **syn. nov.**

Diacrisia turbida woodlarkiana Rothschild (1910: 145; 1914: 247); Strand (1919: 231) **syn. nov.**

Spilosoma turbida woodlarkiana: Hampson (1920: 417)

ssp. *meeki* (Druce, 1899)

Spilarctia meeki Druce (1899: 234)

Diacrisia turbida: Hampson (1901: 315) in part

Diacrisia turbida meeki: Rothschild (1910: 145; 1914: 247); Strand (1919: 230)

Spilosoma turbida meeki: Hampson (1920: 417) [incorrect spelling]

Holotype *Spilaethalida turbida* ♂ BMNH: Type, Duke of York Island, 82-80, [opposite side:] *Spilarctia turbida* Butler Type.

Lectotype *Diacrisia sordidior* ♂ BMNH [designated from syntypes]: Type, Biagi, Mambare R., 5000 ft., B.N.G., iv.1906. (A.S. Meek.), *Diacrisia turbida sordidior* Rothschild Type.

Note: The other 5 males and 7 females, from Fergusson & Goodenough Islands, Milne Bay, Kumusi River (North-East British New Guinea), Biagi (Mambaré River)



and Sattelberg (German New Guinea), become paralectotypes, all in BMNH.

Lectotype *Diacrisia turbida montana* = *alpina* ♂ BMNH [designated from syntypes]: Type, Angabunga R., affl. of St. Joseph R., Brit.N.Guinea, 6000 ft, upwards, xi.1904 - ii.1905. (A.S. Meek), *Diacrisia turbida montana* Rothsch. Type.

Note: The other male and 3 females, from Angabunga River and Upper Aroa River (British New Guinea), become paralectotypes, all in BMNH.

Lectotype *Diacrisia turbida woodlarkiana* ♀ BMNH [designated from syntypes]: Type, Woodlark, Meek. 95 [1895], *Diacrisia turbida woodlarkiana* Rothsch., TYPE.

Paralectotype *Diacrisia turbida woodlarkiana* 1♀ BMNH [designated from syntypes]: same as holotype.

Holotype *Spilarctia meeki* ♀ BMNH [in original description mentioned as ♂]: Type, Kiriwini, Trobriand Is., iv.1895, (A.S. Meek), *Spilarctia meeki* Type Druce.

Diagnosis: The pale costa and white stigma spot are most diagnostic. The ground colour varies from buff to chocolate brown in the nomotypical subspecies and orange in subspecies *meeki*. Valvae narrow without any process, strongly curved, vesica with long trunk-shaped lobes.

Description: FwL. ♂ 18.3-24.0, ♀ 23.4-25.5 mm. ssp. *turbida*: Male antenna dark brown, serrate. Head cream coloured, thorax brown. Patagia and tegulae with black centre, thorax with a black median dorsal streak. Abdomen orange-red with black dorsal and lateral dots. Forewings chocolate brown with broad cream-white costa and dorsum and crossed by narrow cream-white veins, with a distinct oval shaped cream-white dot at the end of the cell. The transverse band represented as scattered black patches obliquely arranged at base, antemedial, median and postmedial, the latter being the most developed at the apex. The termen in the middle with about four black dots. Hindwings rose-red with yellow fringes and dorsum. Black median spot squarish, in some specimens double. A row of irregular shaped and sized postmedial black spots. The apex with tiny black spots. Male genitalia: (prep. RV 1130) Uncus beak-shaped with rather blunt apex. Tegumen with a narrow sclerotized membrane which is broadening near base of uncus. Juxta large trapezium-shaped with a wide concave upper rim. Vinculum widely 'U'-shaped. Valve rather simple, narrow based and elongated, curved inside with slender distal half. Cucullus and sacculus without any process. Apex of valve curled outwards. Aedeagus in the middle with a node and bend downwards with a broadening distal part. Carinal plate with a row of about five to seven coarse

blunt teeth and a parallel row of much smaller blunt teeth. Vesica entirely finely scobinated with the dorsal and ventral lobe well developed, the ventral lobe elongated like a pointy hat. At the left side in the central part with a sclerotized undulated ribbon as an extension of the distal margin of the aedeagus.

Female with dark brown filiform antenna. Colour and pattern basically identical to male but the black pattern more extended and the forewings broader. Hindwings with more extended black pattern, the postmedial spots more or less confluent, the black spots at the apex extended along the termen. Female genitalia: (prep. RV 1327) Segment VIII widely arched with a wide and deep excavation in the ostium area. Lamella postvaginalis sclerotized and rather simple, apical rim almost straight but with a small retraction in the centre where the originally two parts are fused together. Lamella antevaginalis trapezium-shaped with the ostium rim irregularly rounded, again with a slight retraction in the middle and with a suture line slightly visible. Antrum broad and flat, strongly sclerotized, half-way broadly noded, gradually transforming into the strongly sclerotized cervix bursae. Cervix bursae not curled like in most other discussed *Spilosoma* species but broadening and trumpet-shaped. Appendix bursa running from the right side of cervix bursae, basal part slightly sclerotized and wrinkled, followed by a broader large elongated unsclerotized part. Bursa copulatrix shorter than appendix bursa, with two globular lobes of equal size. No signum present.

Description, subspecies *meeki*: Basically the same as the nomotypical subspecies but the groundcolour of the thorax and forewings being orange instead of chocolate brown. The clear spot at the end of the cell white and inbedded in the median transverse band. The rest is the same as in *turbida* s. s.

Distribution: The species is widespread through the mainland of New Guinea but is in the Indonesian part restricted to the eastern area. It is known from the smaller Papua New Guinea Islands and the Bismarck Archipelago. The nomotypical subspecies shows some local geographical forms (dark brown in the mountains, paler in low areas) and varies in size between some populations (smaller specimens in the southern part of New Guinea) but these features are not significant for separation into subspecies. The only other recognized subspecies is ssp. *meeki* which is found at Trobriand Island (Kiriwina).

Note: The nomotypical subspecies from Duke of York Island, *sordidior* (= *montana*; = *alpina*)



from the mainland of New Guinea and from the D'Entrecasteaux Islands and *woodlarkiana* from Woodlark Island are consubspecific. The wing pattern and groundcolour of both vary in the same range. It is not justified to keep those 'subspecies' separated. *Diacrisia turbida woodlarkiana* was described after a female but its phenotype is typical for *turbidana* females.

Checklist of *Spilosoma* Curtis, 1825 from New Guinea and adjacent islands

Spilosoma Curtis, 1825

dinawa group

adriani sp. nov.

alberti (Rothschild, 1914)

meeki (Rothschild, 1910) homonym

biagi (Bethune-Baker, 1908)

elongata Rothschild, 1914

angiana Joicey et Talbot, 1916

nigricornia Joicey et Talbot, 1916

cinnamomea sp. nov.

dinawa (Bethune-Baker, 1904)

ochrifrons Joicey et Talbot, 1917

kebea (Bethune-Baker, 1904)

owgarra (Bethune-Baker, 1908)

ssp. *owgarra* (Bethune-Baker, 1908)

ssp. *germanica* (Rothschild, 1910)

pratti (Bethune-Baker, 1904)

ssp. *pratti* (Bethune-Baker, 1904)

ssp. *eichhorni* (Rothschild, 1917) **stat. nov.**

rubribasis (Joicey et Talbot, 1916)

vulgaris sp. nov.

arctichroa group

arctichroa (Druce, 1909)

holobrunnea group

holobrunnea (Joicey et Talbot, 1916)

postbrunnea sp. nov.

ruficosta (Joicey et Talbot, 1916)

wernerthomasi sp. nov.

costata group

costata (Boisduval, 1832)

vivida Rothschild, 1910

hypsoides (Rothschild, 1914)

fraterna group

fraterna (Rothschild, 1910)

nana sp. nov.

styx group

reticulata Rothschild, 1933

styx (Bethune-Baker, 1910)

albistriga Talbot, 1929

persimilis group

enarotali sp. nov.

grandimacula sp. nov.

mastrigti sp. nov.

novaeguineae Rothschild, 1913

persimilis (Rothschild, 1914)

transversa sp. nov.

Spilaethalida Dubatolov, De Vos & Daawia, 2007

turbida (Butler, 1882)

ssp. *turbida* (Butler, 1882)

sordidior (Rothschild, 1910) **syn. nov.**

montana Rothschild, 1910 **syn. nov.**

alpina (Rothschild, 1914) **syn. nov.**

woodlarkiana (Rothschild, 1910) **syn. nov.**

ssp. *meeki* (Druce, 1899)

Key to the males of the *Spilosoma* and *Spilaethalida* species from New Guinea by wing pattern

- 1 Forewings for the greater part black or strongly black patterned 2
 - Forewings different 7
- 2 Forewings black with few white patches and spots and white veins *styx* (Plate 54, fig. 2)
 - Forewings different 3
- 3 Both wings with yellow ground colour, black pattern covering greater part of wings
 - Forewings with white or brown ground colour and strongly black pattern 4
- 4 Hindwings rose-red 5
 - Hindwings yellow 6
- 5 Forewings with prominent black patches and white veins, ground colour brown *owgarra* (Plate 48, fig. 5)
 - Forewing with three major rows of blackish patches, ground colour white *arctichroa* (Plate 50, fig. 8)
- 6 Forewing for the greater part covered with black patches, ground colour white *reticulata* (Plate 53, fig. 8)



– Forewings with numerous black patches and twin spots, usually edged with yellow, ground colour buff or grey-brown	<i>biagi</i> (Plate 45, fig. 5)
7 Fore- and hindwings for the greater part yellow or ochreous	8
– Fore- and hindwings different, with brown or greyish ground colour	9
8 Forewings with dark brown or blackish veins	<i>costata</i> (Plate 52, fig. 6)
– Forewings ochreous yellow with pale yellow veins and with oblique postmedial row of black dots	<i>hypsoides</i> (Plate 53, fig. 2)
9 Smaller species with short wings, ground colour mainly buff or greyish, underside banded with black, buff and rose-red	10 (<i>persimilis</i> group)
– Larger species, wings more or less stretched or broad, underside usually unicolorous (forewings may have a rose-red central area) with black patches	14
10 Strong complete transverse bands on upper- and underside of both wings	<i>transversa</i> (Plate 56, fig. 8)
– Complete transverse bands obscure, narrow or not present at all	11
11 Forewings with narrow more or less obscure complete transverse bands, ground colour grey-brown or buff	<i>mastrigti</i> (Plate 55, fig. 5)
– Forewings with or without (rows of) dark patches but no complete bands	12
12 Forewings scarcely marked, cubital vein with dark bar, a row of submarginal spots	<i>enarotali</i> (Plate 54, fig. 5)
– Forewings with distinct spots and patches	13
13 Forewings buff with transverse rows of fine black dots and patches, discal spot always present and usually prominent	<i>persimilis</i> (Plate 56, fig. 5)
– Forewings usually suffused with black scales, large costal patches and discal spots, dark specimens usually with pale costa	<i>grandimacula</i> (Plate 55, fig. 1)
14 Forewings with pale costa and conspicuous white discal spot, black pattern of large squarish or longitudinal patches	15
– Forewings different, no white discal spot present	16
15 Forewings (chocolate) brown or dark buff	<i>turbida turbida</i> (Plate 57, fig. 2)
– Forewings orange-red	<i>turbida meeki</i> (Plate 57, fig. 7)
16 Species with dark brown forewings, dark pattern of discal spots and antemedial and postmedial lines or row of spots, costal patches (if present) small	17
– Forewings different, if dark brown with large costal patches	19
17 Hindwings of same colour as forewing, dark brown	<i>postbrunnea</i> (Plate 51, fig. 6)
– Hindwings paler than forewing	18
18 Hindwings buff or brown tinged	<i>holobrunnea</i> (Plate 51, fig. 3)
– Hindwings rose-red tinged	<i>wernerthomasi</i> (Plate 52, fig. 2)
19 Forewings without prominent spots and patches	20
– Forewings with prominent spots and patches	25
20 Forewings almost plain coloured and without pattern	21
– Forewings at least with some small spots or lines	22
21 Forewings ochreous-brown or cinnamon-coloured, hindwings with rose-red tinge ...	<i>cinnamomea</i> (Plate 46, fig. 5)
– Forewings greyish-brown, hindwings yellow	<i>nana</i> (Plate 53, fig. 6)
22 Forewings long and stretched, an oblique brownish band running towards apex with tiny black marginal spots ..	<i>adriani</i> (fig. 5)
– Forewings broad and different	23
23 Forewings usually with reddish-brown transverse lines and distinct discal spot	<i>alberti</i> (Plate 45, fig. 1)
– Forewings without lines, discal spot very small or obscure	24
24 Forewings with oblique postmedial row of spots complete and running towards apex	<i>ruficosta</i> (Plate 51, fig. 8)
– Forewings with postmedial row sinuous and not running to apex	<i>fraterna</i> (Plate 53, fig. 4)
25 Large black dorsal patch on thorax present, forewings with or without costal patches	26
– No large black dorsal patch on thorax, forewings with costal patches	27
26 Only prominent markings on forewings are two black spots on dorsum, forewings brown	<i>pratti pratti</i> (Plate 49, fig. 2)
– Forewings with antemedial, medial and (sub)marginal bands of black spots, forewings pale buff	<i>pratti eichhorni</i> (Plate 49, fig. 5)



27 Forewing costa between patches paler coloured than forewing	28
– Forewing costa not distinctly paler than rest of forewing	29
28 Forewings with midsection usually dark patterned, postmedial band not complete, only few or no marginal spots, highland species	<i>kebea</i> (Plate 47, fig. 5)
– Forewings with postmedial band well developed with double spots, usually a row of marginal spots present, lowland species	<i>dinawa</i> (Plate 46, fig. 7)
29 Apart from costal and dorsal spots hardly any pattern on upperside of forewing but broad black postmedial band on underside shining through upperside, second and third costal patch widely separated	<i>rubribasis</i> (Plate 49, fig. 7)
– Without broad black postmedial band on underside of forewing, second and third costal patch closer to each other	<i>vulgaris</i> (Plate 50, fig. 2)

Key to the *Spilosoma* and *Spilaethalida* species from New Guinea by male genitalia

1 Valvae narrow without any process, strongly curved, vesica with long trunk-shaped lobes ...	<i>turbida</i> (Plate 71, fig. 2)
– Valvae with distinct process on cucullus, sacculus and/or apex of valvae	2
2 Valvae at base with long peniculus-like structure, cucullus and sacculus both with processes	<i>pratti</i> (Plate 61, fig. 2)
– Valvae at base without long peniculus-like structure	3
3 Processes on valvae only distad	4
– Processes on valvae more to the middle	10
4 Valvae short, apex just reaching middle of tegumen	5
– Valvae longer, exceeding middle of tegumen	6
5 Sacculus apically with short broadly based process, carinae a group of conical thorns ...	<i>reticulata</i> (Plate 67, fig. 2)
– Sacculus apically with longer narrow based process, carinal plate with one thorn	<i>styx</i> (Plate 68, fig. 1)
6 Valvae at base with bulbous peniculus-like structure, apex of valvae spoon-shaped, tegumen long	7
– Valvae at base without bulbous peniculus-like structure	8
7 A short rounded process on sacculus near apex	<i>fraterna</i> (Plate 66, fig. 2)
– Sacculus with extended rim near apex	<i>nana</i> (Plate 67, fig. 1)
8 Apex of valvae not bilobed, apex strongly curved, one apical process on cucullus	<i>arctichroa</i> (Plate 63, fig. 1)
– Apex of valvae bilobed and not strongly curved, apical process on sacculus	9
9 Vesica of aedeagus ventrally and dorsally with field of strong cornutal spines	<i>holobrunnea</i> (Plate 63, fig. 2)
– Vesica with tiny scobination and without distinct cornutal spines	<i>postbrunnea</i> (Plate 64, fig. 1)
10 Valvae broad, from base to apex broadening with an irregular apical rim	11
– Valvae different	12
11 Cucullus with long apical process and a costal process	<i>costata</i> (Plate 65, fig. 2)
– Cucullus without apical process, only costal process present	<i>hypsoides</i> (Plate 66, fig. 1)
12 Sacculus with very broadly based triangular process with sharp apex	13
– Sacculus without broadly based process	14
13 Carinal plate with one large and three smaller teeth	<i>ruficosta</i> (Plate 64, fig. 2)
– Carinal plate with one tooth	<i>wernerthomasi</i> (Plate 65, fig. 1)
14 Vesica of aedeagus with deep ventral lobe covered with cornutal spines	15 (<i>persimilis</i> group)
– Vesica with ventral lobe not so deep and at most with fields of cornutal spines	20
15 Carinal plate with sharp teeth rather than knobbls and conical thorns	16
– Carinal plate with knobbls or conical thorns	17
16 Carinal plate with two rows of at least five teeth	<i>grandimacula</i> (Plate 69, fig. 1)
– Carinal plate with one row of about three teeth	<i>enarotali</i> (Plate 68, fig. 2)
17 Carinal plate with large coarse blunt knobbls	<i>persimilis</i> (Plate 70, fig. 2)
– Carinal plate with smaller and finer knobbls or conical thorns	18
18 Process on sacculus at two-third of valvae in apical part	<i>novaeuguineae</i> (Plate 70, fig. 1)
– Process on sacculus halfway valvae length	19
19 Sacculus with short process with rounded apex, apical proces of cucullus long	<i>mastrigti</i> (Plate 69, fig. 2)
– Process on sacculus with sharp apex, apical process of cucullus shorter	<i>transversa</i> (Plate 71, fig. 1)



20 Sacculus with sharp process and with two large rounded lobes, carinal plate with one large thorn	<i>adriani</i> (Plate 58, fig. 1)
– Sacculus without rounded lobes, if present lobes at valvae apex	21
21 Apex of valvae modified into a worm-like curl or knod, not bilobed	22
– Apex of valvae bilobed	24
22 Apex of valvae curled worm-like, process on sacculus long finger-shaped	<i>owgarra</i> (Plate 61, fig. 1)
– Apex of valvae different	23
23 Cucullus apically with a triangular inwards folded flap, valvae apex with rounded protuberance, short conical thorns on carinal plate	<i>cinnamomea</i> (Plate 59, fig. 2)
– Cucullus with a spoon-shaped apical process, carinal plate with three sharp teeth and some tiny ones	<i>biagi</i> (Plate 59, fig. 1)
24 Vinculum rather narrow, process on sacculus delicate	25
– Vinculum wide, process on sacculus long and thick	26
25 Carinal plate with two short teeth, process on sacculus twisted and shorter than <i>vulgaris</i>	<i>rubribasis</i> (Plate 62, fig. 1)
– Carinal plate with at least four sharp teeth, process on sacculus longer than <i>rubribasis</i> and not twisted	<i>vulgaris</i> (Plate 62, fig. 2)
26 Carinal plate with one spatula-shaped tooth and a few sharp teeth	<i>dinawa</i> (Plate 60, fig. 1)
– Carinal plate without spatula-shaped tooth, only sharp or smaller blunt teeth	27
27 Carinal plate with more than ten sharp teeth in two rows	<i>kebea</i> (Plate 60, fig. 2)
– Carinal plate with blunt and sharp teeth grouped	<i>alberti</i> (Plate 58, fig. 2)

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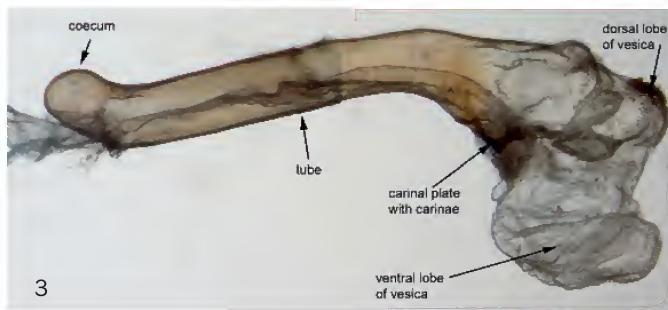
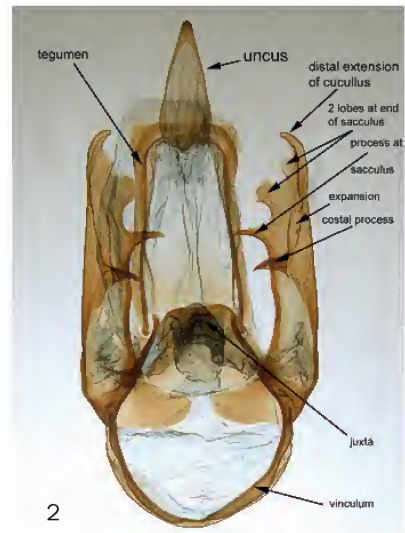
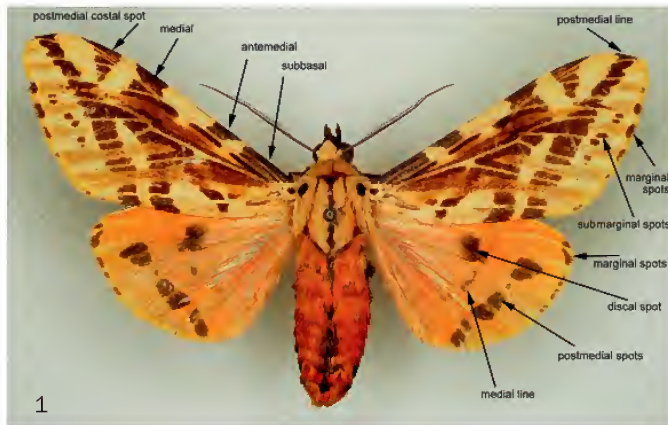
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Plate 44

Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



Figures 1-4. Terminology used for wing pattern and genitalia.
1: wing pattern; 2: habitus male genitalia; 3: aedeagus; 4: habitus female genitalia.



Figures 5-6 *Spilosoma adriani* sp. nov. holotype ♂, Nabire, Papua, Indonesia (CMWM).
5: upperside; 6: underside.

Plate 45

Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



Figures 1-4. *Spilosoma alberti* (Rothschild). 1: upperside ♂, Bilogai, Papua, Indonesia (ZMAN); 2: ditto, underside; 3: holotype *Spilosoma meeki* (Rothschild) ♂, Angabunga River, Papua New Guinea (BMNH); 4: ♀, Pass Valley, Papua, Indonesia (KSP).



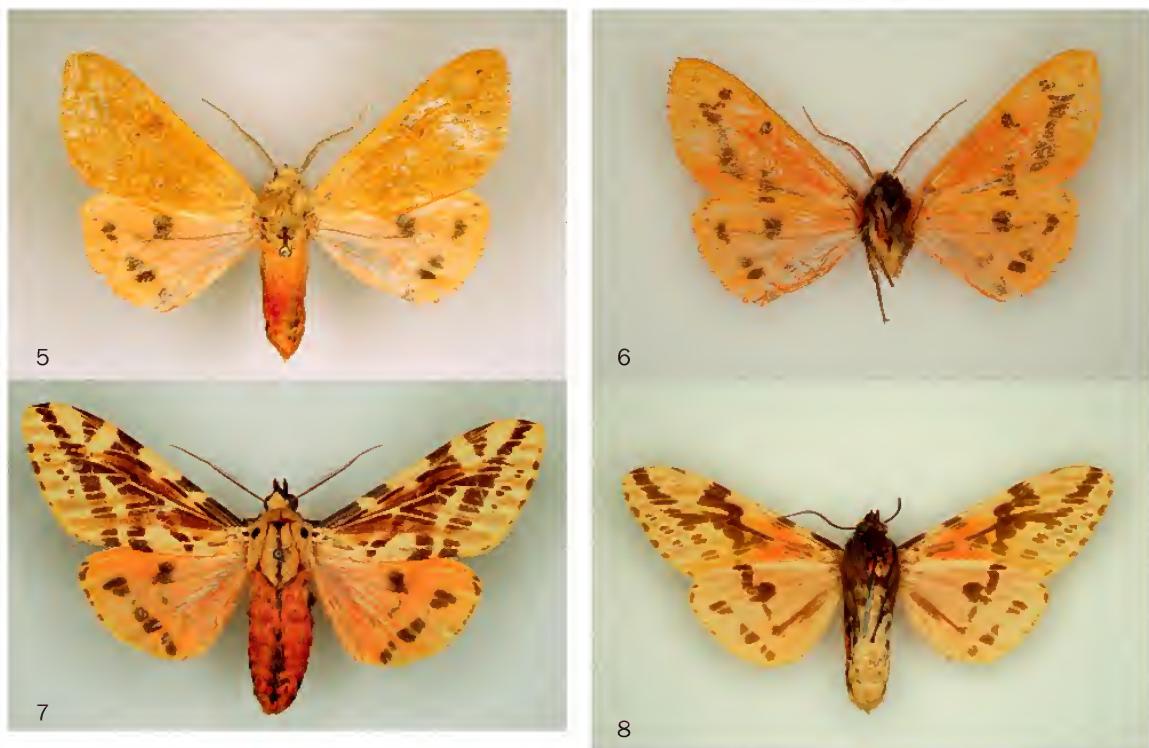
Figures 5-8. *Spilosoma biagi* (Bethune-Baker). 5: upperside ♂, Walmak, Papua, Indonesia (ZMAN); 6: ditto, underside; 7: holotype ♂, Biagi, Papua New Guinea (BMNH); 8: holotype *Spilosoma angiana* Joicey et Talbot ♂, Anggi Lakes, Papua, Indonesia (BMNH).

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Figures 1-4. *Spilosoma biagi* (Bethune-Baker). 1: holotype *S. nigricornis* Joicey et Talbot ♂, Wandammen, Papua, Indonesia (BMNH); 2: lectotype *Spilosoma elongata* Rothschild ♂, Ninay Valley, Papua, Indonesia (BMNH); 3: ♀, Pass Valley, Papua, Indonesia (ZMAN); 4: ♀, Mabilabol, Papua, Indonesia (KSP).



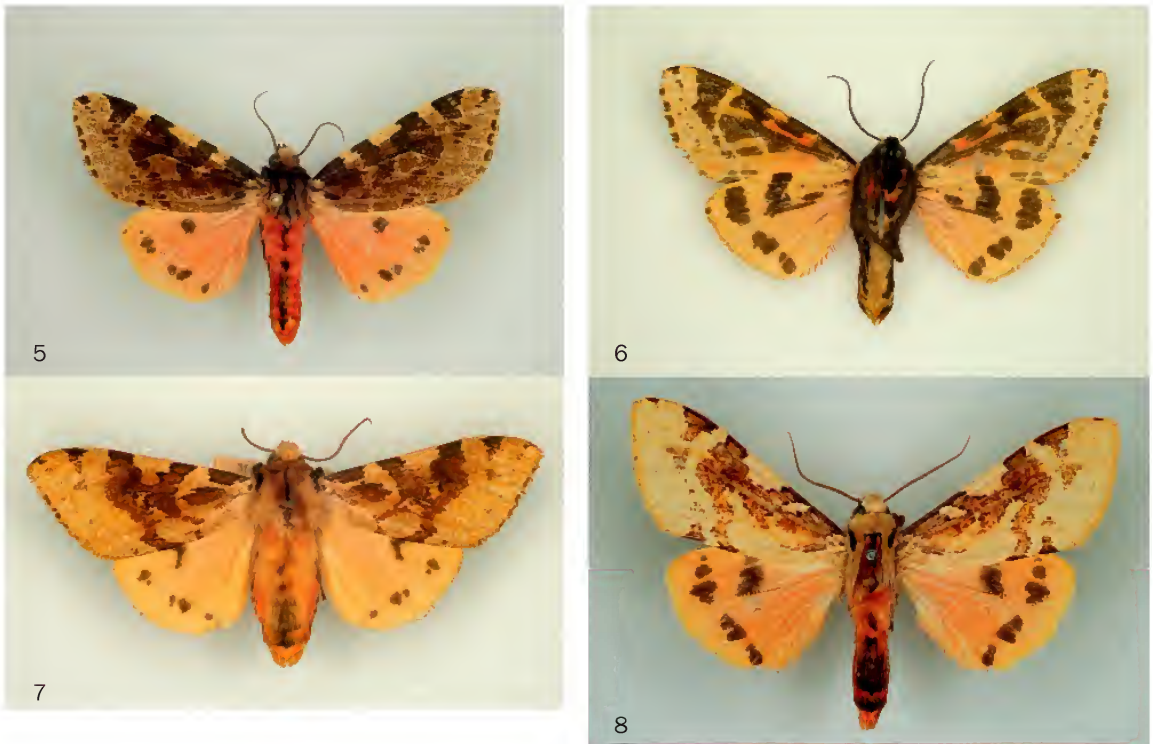
Figures 5-6. *Spilosoma cinnamomea* sp. nov. 5: holotype ♂, Manid Watut, Papua New Guinea (CMWM); 6: ditto, underside. Figures 7-8. *Spilosoma dinawa* (Bethune-Baker). 7: ♂, Utaikwa River, Papua, Indonesia (BMNH); 8: ditto, underside, Ampas, Papua, Indonesia (ZMAN).

Plate 47

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Figs 1-4. *Spilosoma dinawa* (Bethune-Baker). 1: holotype ♂, Dinawa, Papua New Guinea (BMNH); 2: holotype *Spilosoma ochrifrons* Joicey et Talbot ♂, Wandammen, Papua, Indonesia (BMNH); 3: ♀, Cyclops Mountains, Papua, Indonesia (BMNH); 4: ♀, Mafulu, Papua New Guinea (BMNH).



Figures 5-8. *Spilosoma kebea* (Bethune-Baker). 5: ♂, Mabilabol, Papua, Indonesia (ZMAN); 6: ditto, underside, Mabilabol, Papua, Indonesia (ZMAN); 7: holotype ♂, Mount Kebea, Papua New Guinea (BMNH); 8: ♂, Hydrographer Mountains, Papua New Guinea (BMNH).

Plate 48

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Figures 1-4. *Spilosoma kebea* (Bethune-Baker). 1: ♂, Angabunga River, Papua New Guinea (BMNH); 2: ♀, Biagi, Papua New Guinea (BMNH); 3: ♀, Nabire, Papua, Indonesia (CMWM); 4: ♀, Nabire, Papua, Indonesia (CMWM).



Figures 5-8. *Spilosoma owgarra* (Bethune-Baker). 5: ♂, Abmisibil, Papua, Indonesia (ZMAN); 6: ♂, underside, Abmisibil, Papua, Indonesia (ZMAN); 7: holotype ♀, Owgarra, Papua New Guinea (BMNH); 8: holotype *Spilosoma owgarra germanica* (Rothschild) ♂, Sattelberg, Papua New Guinea (BMNH).

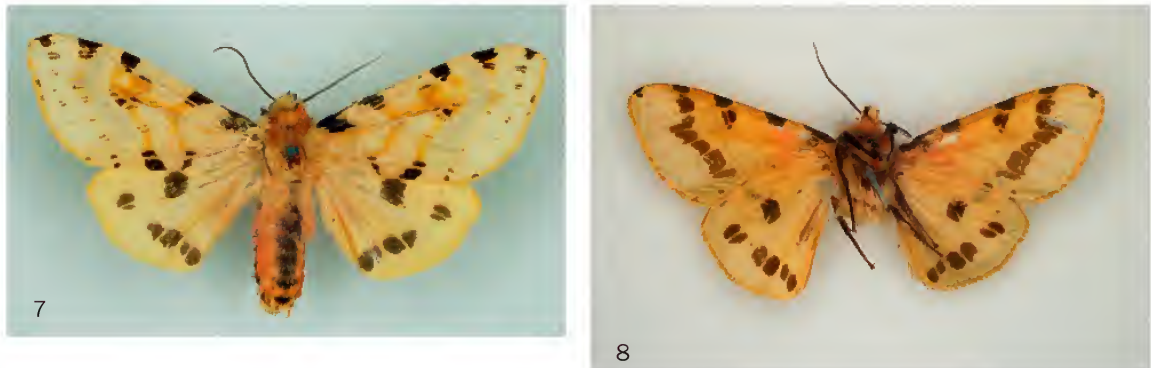
Plate 49

Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



Figure 1. *Spilosoma owgarra germanica* (Rothschild) ♀, Kratke Mountains, Papua New Guinea (BMNH).

Figures 2-6. *Spilosoma pratti* (Bethune-Baker). 2: Lectotype *Spilosoma pratti* (Bethune-Baker) ♂, Mount Kebea, Papua New Guinea (BMNH); 3: ♂, underside, Patianda Watut, Papua New Guinea (CMWM); 4: ♀, Biagi, Papua New Guinea (BMNH); 5: holotype *Spilosoma pratti eichhorni* ♂, Goodenough Island, Papua New Guinea (BMNH); 6: underside ♂, Goodenough Island, Papua New Guinea (BMNH).



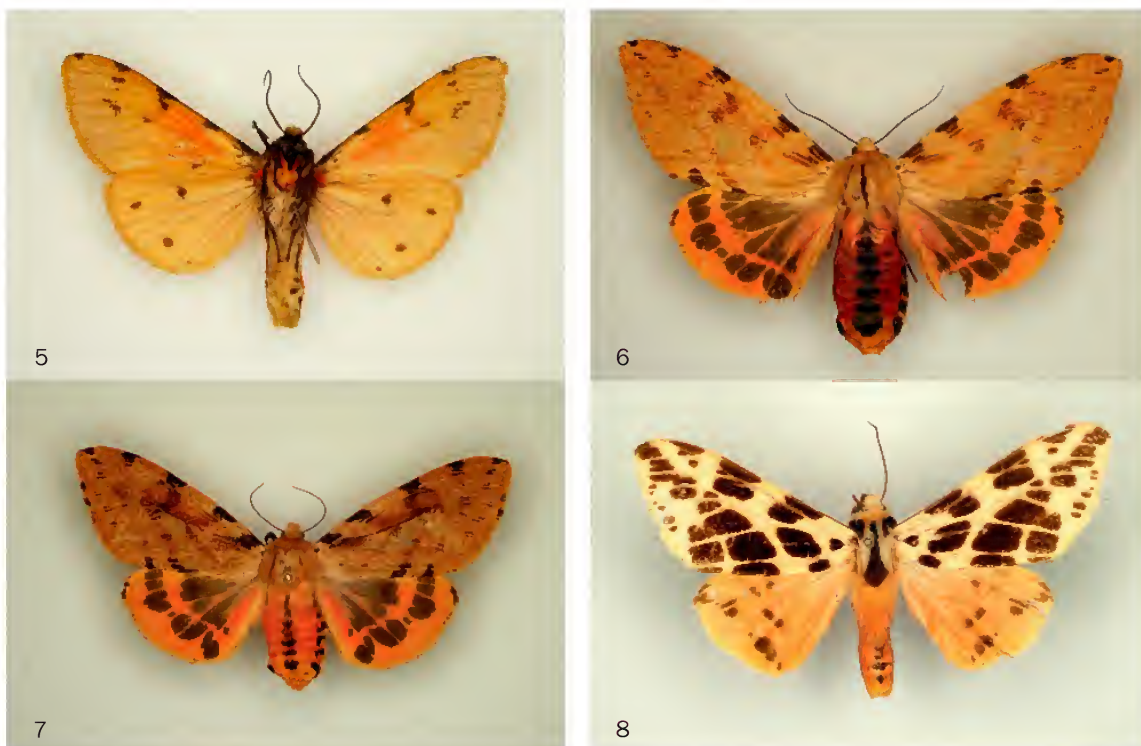
Figures 7-8. *Spilosoma rubribasis* (Joicey et Talbot). 7: ♂, Weyland Mountains, Papua, Indonesia (BMNH); 8: underside ♂, Mount Kunupi, Weyland Mountains, Papua, Indonesia (BMNH).

Plate 50

Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



Figure 1. *Spilosoma rubribasis* (Joicey et Talbot) holotype ♂, Anggi Lakes, Papua, Indonesia (BMNH).
Figures 2-4. *Spilosoma vulgaris* sp. nov. 2: holotype ♂, Walmak, Papua, Indonesia (ZMAN); 3: underside paratype ♂, Walmak, Papua, Indonesia (ZMAN); 4: paratype ♂ (obsolete form), Jiwika, Papua, Indonesia (ZMAN).

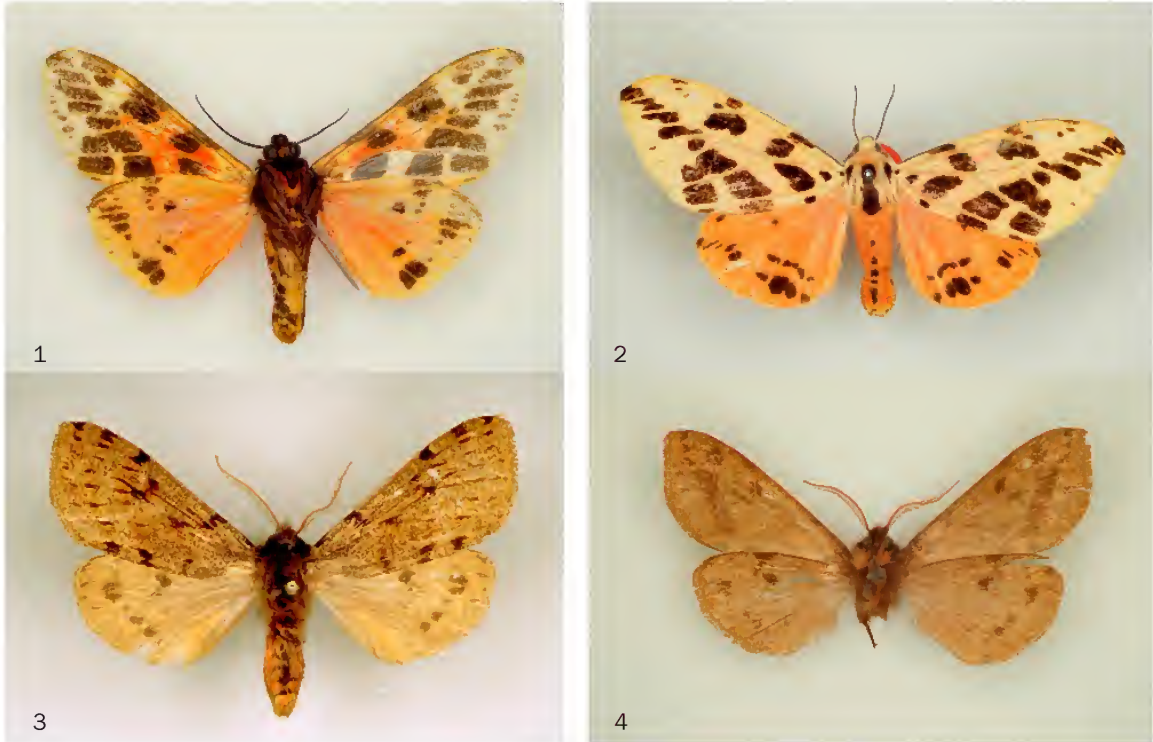


Figures 5-7. *Spilosoma vulgaris* sp. nov. 5: paratype ♂ (obsolete form), Jiwika, Papua, Indonesia (ZMAN), underside; 6: paratype ♀, Walmak, Papua, Indonesia (ZMAN); 7: paratype ♀, Walmak, Papua, Indonesia (ZMAN).

Figure 8. *Spilosoma arctichroa* (Druce) ♂, Ampas, Papua, Indonesia (ZMAN).

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Figures 1-2. *Spilosoma arctichroa* (Druce). 1: underside ♂, Batanta Island, Papua, Indonesia (ZMAN); 2: holotype ♀, Fakfak, Papua, Indonesia (BMNH). Figures 3-4. *Spilosoma holobrunnea* (Joicey et Talbot). 3: ♂, Patianda Watut, Papua New Guinea (CMWM); 4: underside ♂, Patianda Watut, Papua New Guinea (CMWM).

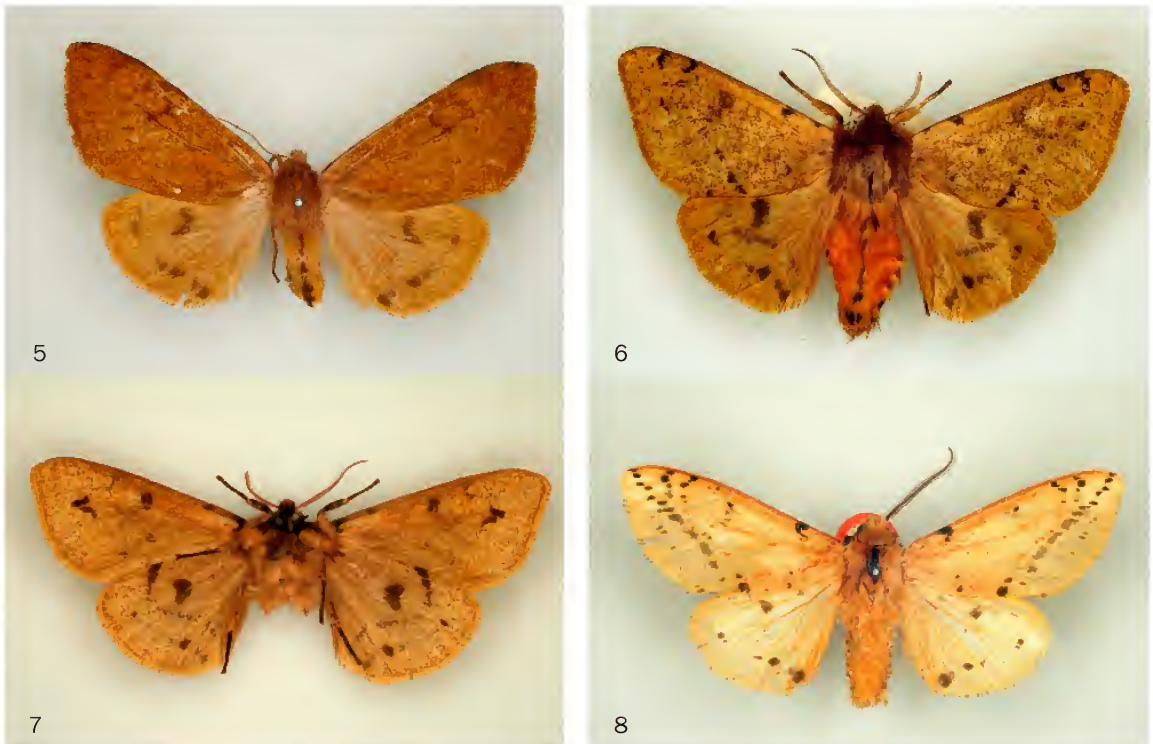


Figure 5. *Spilosoma holobrunnea* (Joicey et Talbot), holotype ♀, Anggi Lakes, Papua, Indonesia (BMNH). Figures 6-7. *Spilosoma postbrunnea* sp. nov. 6: holotype ♂, Mount Tafa, Papua New Guinea (BMNH); 7: ditto, underside. Figure 8. *Spilosoma ruficosta* (Joicey et Talbot), holotype ♂, Anggi Lakes, Papua, Indonesia (BMNH).

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Figure 1. *Spilosoma ruficosta* (Joicey et Talbot) paratype ♂, Anggi Lakes, Papua, Indonesia (BMNH).
Figures 2-4. *Spilosoma wernerthomasi* sp. nov. 2: paratype ♂, Saiko, Papua New Guinea (BMNH); 3: ditto, underside; 4: paratype ♂, Biagi, Papua New Guinea (BMNH).

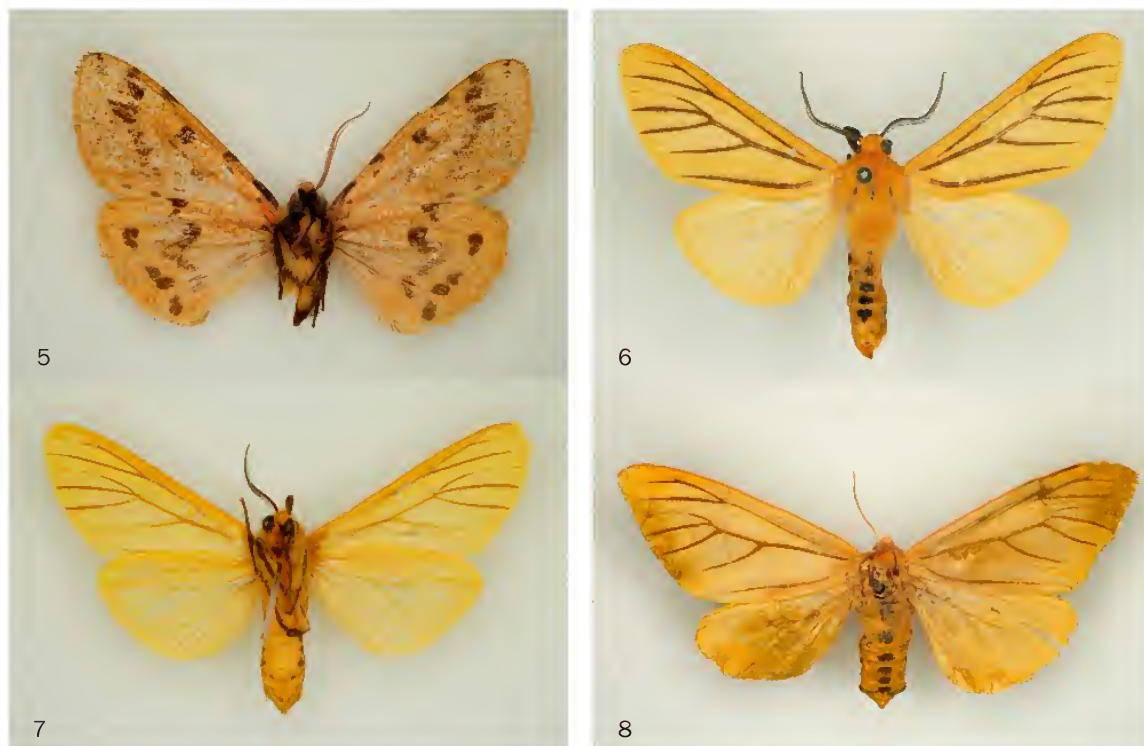


Figure 5. *Spilosoma wernerthomasi* sp. nov. underside paratype ♂, Patianda Watut, Papua New Guinea (CMWM).
Figures 6-8. *Spilosoma costata* (Boisduval). 6: ♂, New Britain, Papua New Guinea (CMWM); 7: underside ♂, Uskwar, Papua, Indonesia (ZMAN); 8: holotype ♀, Port Praslin, New Ireland, Papua New Guinea (BMNH).

Plate 53

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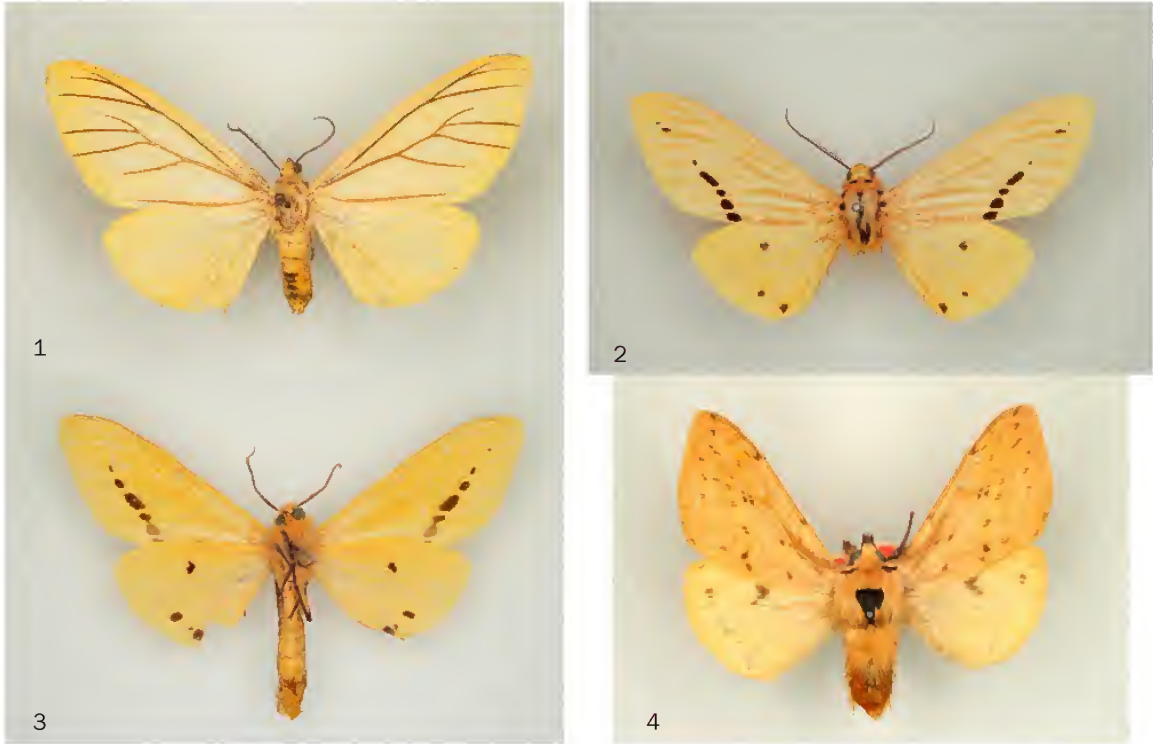


Figure 1. *Spilosoma costata* (Boisduval) ♀, Rawlinson Mountains, Papua New Guinea (BMNH).

Figures 2-3. *Spilosoma hypsoides* (Rothschild). 2: lectotype ♂, Ninay Valley, Papua, Indonesia (BMNH); 3: underside paralectotype ♂, Ninay Valley, Papua, Indonesia (BMNH).

Figure 4. *Spilosoma fraterna* (Rothschild) holotype ♂, Biagi, Papua New Guinea (BMNH).



Figure 5. *Spilosoma fraterna* (Rothschild) underside ♂, Bulolo, Papua New Guinea (CMWM).

Figures 6-7. *Spilosoma nana* sp. nov. 6: holotype ♂, Manid Watut, Papua New Guinea (CMWM); 7: ditto, underside.

Figure 8. *Spilosoma reticulata* Rothschild lectotype ♂, Talesea, New Britain, Papua New Guinea (BMNH).

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1



2



3



4

Figure 1. *Spilosoma reticulata* Rothschild, underside paralectotype ♂, Talesea, New Britain, Papua New Guinea (BMNH). Figures 2-4. *Spilosoma styx* (Bethune-Baker). 2: holotype ♂, Ninay Valley, Papua, Indonesia (BMNH); 3: underside ♂, Warkapi, Papua, Indonesia (ZMAN); 4: holotype *Spilosoma albistriga* Talbot ♂, Nomnagihé, Papua, Indonesia (BMNH).



5



6



7



8

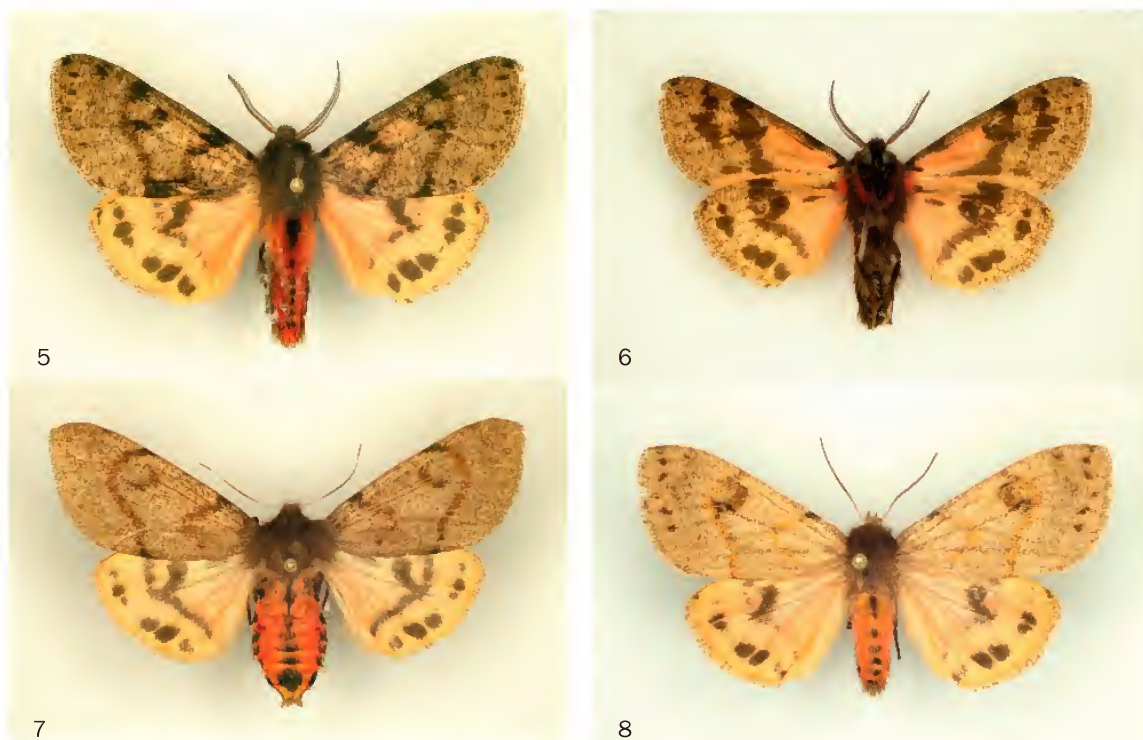
Figures 5-8: *Spilosoma enarotali* sp. nov. 5: holotype ♂, Enarotali, Papua, Indonesia (KSP); 6: ditto, underside; 7: paratype ♀, Araboebivak, Papua, Indonesia (RMNH); 8: paratype ♀, Enarotali, Papua, Indonesia (KSP).

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Figures 1-4. *Spilosoma grandimacula* sp. nov. 1: holotype ♂, Bilogai, Papua, Indonesia (KSP); 2: ditto, underside; 3: paratype ♂ (pale form), Kwaimunga, Papua New Guinea (CMWM); 4: underside paratype ♂ (pale form), Patianda Watut, Papua New Guinea (CMWM).



Figures 5-8. *Spilosoma mastrigti* sp. nov. 5: holotype ♂, Abmisibil, Papua, Indonesia (ZMAN); 6: ditto, underside; 7: paratype ♀, Pass Valley, Papua, Indonesia (ZMAN); 8: paratype ♀, Ilaga, Papua, Indonesia (ZMAN).

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Figures 1-2. *Spilosoma mastigti* sp. nov. 1: ♂ (pale form), Ilaga, Papua, Indonesia (ZMAN); 2: ditto, underside.

Figures 3-4. *Spilosoma novaeguineae* Rothschild. 3: holotype ♂, Bolauberg, Papua New Guinea (BMNH); 4: ditto, underside.



Figures 5-7. *Spilosoma persimilis* (Rothschild). 5: lectotype ♂, Mount Goliath, Papua, Indonesia (BMNH); 6: underside ♂, Wamena, Papua, Indonesia (ZMAN); 7: ♀, Wamena, Papua, Indonesia (ZMAN).

Figure 8. *Spilosoma transversa* sp. nov. holotype ♂, Kuper Range, Papua New Guinea (CMWM).

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Figure 1. *Spilosoma transversa* sp. nov. underside holotype ♂, Kuper Range, Papua New Guinea (CMWM).
 Figures 2-4. *Spilaethalida turbida* (Butler). 2: holotype *S. turbida* ♂, Duke of York Island, Papua New Guinea (BMNH);
 3: underside ♂, Getentiri, Papua, Indonesia (ZMAN); 4: holotype *sordidior* (Rothschild) ♂, Biagi, Papua New Guinea (BMNH);



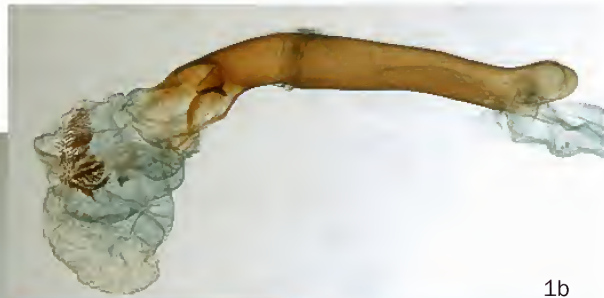
Figures 5-7. *Spilaethalida turbida* (Butler). 5: holotype *montana* Rothschild ♂, Angabunga River, Papua New Guinea (BMNH); 6: holotype *woodlarkiana* (Rothschild) ♀, Woodlark Island, Papua New Guinea (BMNH); 7: holotype *Spilaethalida turbida meeki* (Druce) ♀, Kiriwini, Trobriand Islands, Papua New Guinea (BMNH).

Plate 58

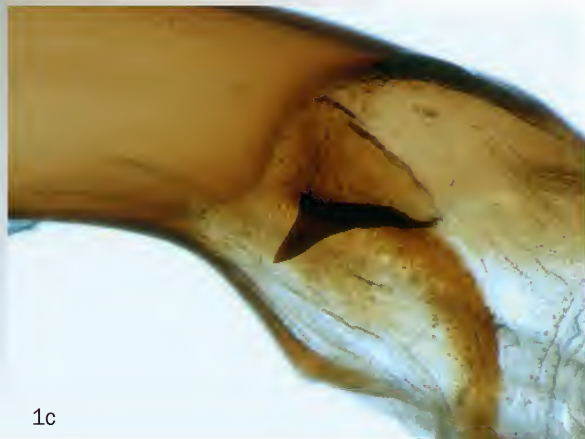
Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



1a



1b

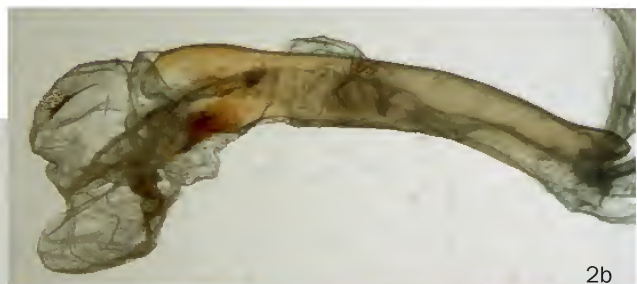


1c

Figures 1a-c. *Spilosoma adriani* sp. nov. male genitalia prep. RV1248. a: habitus genitalia; b: aedeagus; c: carinae.



2a



2b



2c

Figures 2a-c. *Spilosoma alberti* (Rothschild) male genitalia prep. RV1125. a: habitus genitalia; b: aedeagus; c: carinae.

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Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



1a



1b



1c

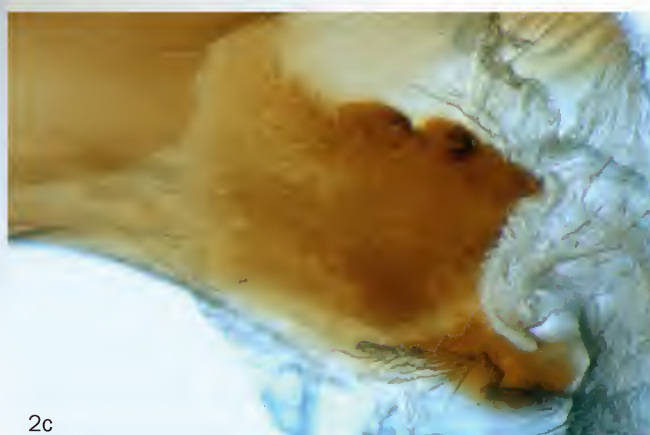
Figures 1a-c. *Spilosoma biagi* (Bethune-Baker), male genitalia prep. RV1160. a: habitus genitalia; b: aedeagus; c: carinae.



2a



2b



2c

Figures 2a-c. *Spilosoma cinnamomea* sp. nov., male genitalia prep. RV1246. a: habitus genitalia; b: aedeagus; c: carinae.

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Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



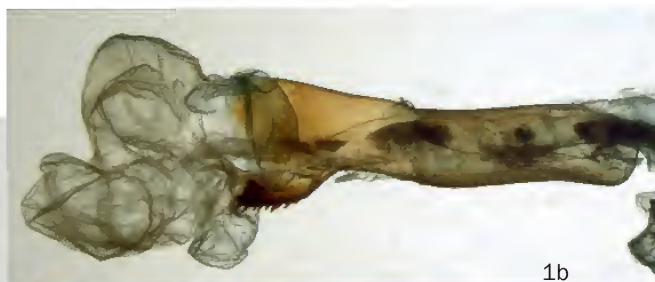
Figures 1a-c. *Spilosoma dinawa* (Bethune-Baker) male genitalia prep. RV 1137 & RV1236. a: habitus genitalia (RV1236); b: aedeagus (RV1236); c: carinae (RV 1137).



Figures 2a-c. *Spilosoma kebea* (Bethune-Baker) male genitalia prep. RV1232. a: habitus genitalia; b: aedeagus; c: carinae.

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Figures 1a-c. *Spilosoma owgarra* (Bethune-Baker) male genitalia prep. RV1127. a: habitus genitalia; b: aedeagus; c: carinae.



Figures 2a-c. *Spilosoma pratti* (Bethune-Baker), male genitalia prep. BM6012. a: habitus genitalia; b: aedeagus; c: carinae.

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1a



1b



1c

Figures 1a-c. *Spilosoma rubribasis* (Joicey et Talbot) male genitalia prep. BM6008. a: habitus genitalia; b: aedeagus; c: carinae.



2b



2a



2c

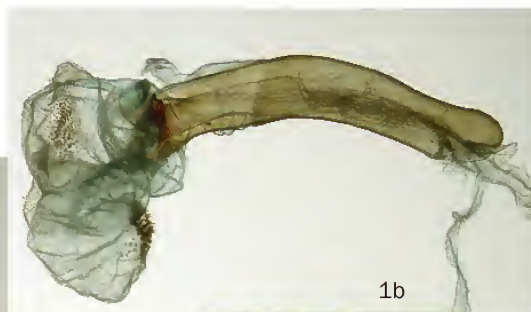
Figures 2a-c. *Spilosoma vulgaris* sp. nov. male genitalia prep. RV1299. a: habitus genitalia; b: aedeagus; c: carinae.

Plate 63

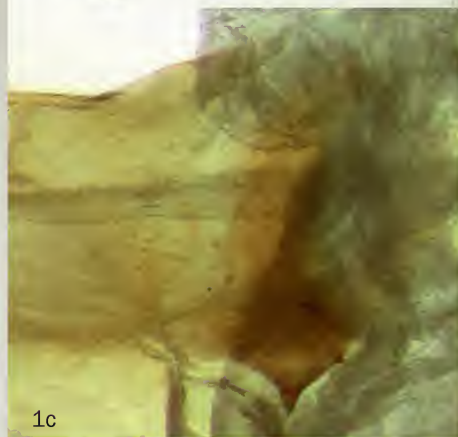
Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



1a



1b



1c

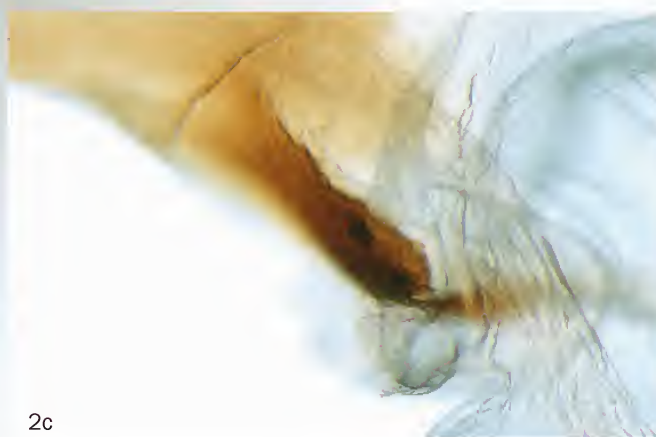
Figures 1a-c. *Spilosoma arctichroa* (Druce) male genitalia prep. RV1162. a: habitus genitalia; b: aedeagus; c: carinae.



2a



2b



2c

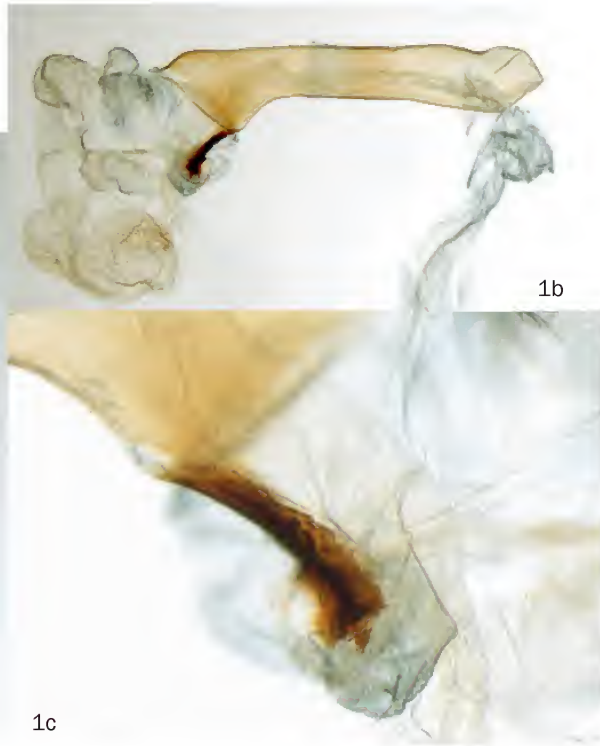
Figures 2a-c. *Spilosoma holobrunnea* (Joicey et Talbot) male genitalia prep. RV1242. a: habitus genitalia; b: aedeagus; c: carinae.

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Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



1a



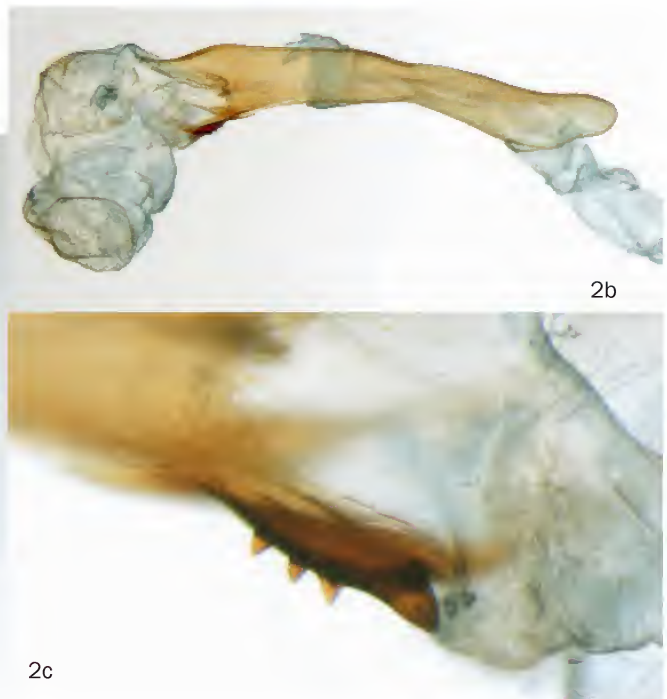
1b

1c

Figures 1a-c. *Spilosoma postbrunnea* sp. nov. male genitalia prep. BM6010. a: habitus genitalia; b: aedeagus; c: carinae.



2a



2b

2c

Figures 2a-c. *Spilosoma ruficosta* (Joicey et Talbot) male genitalia prep. BM6013. a: habitus genitalia; b: aedeagus; c: carinae.

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Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



1a



1b

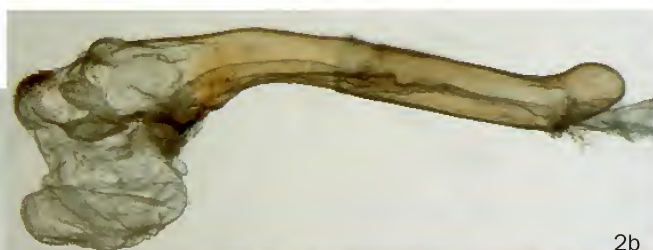


1c

Figures 1a-c. *Spilosoma wernerthomasi* sp. nov. male genitalia prep. RV1251. a: habitus genitalia; b: aedeagus; c: carinae.



2a



2b



2c

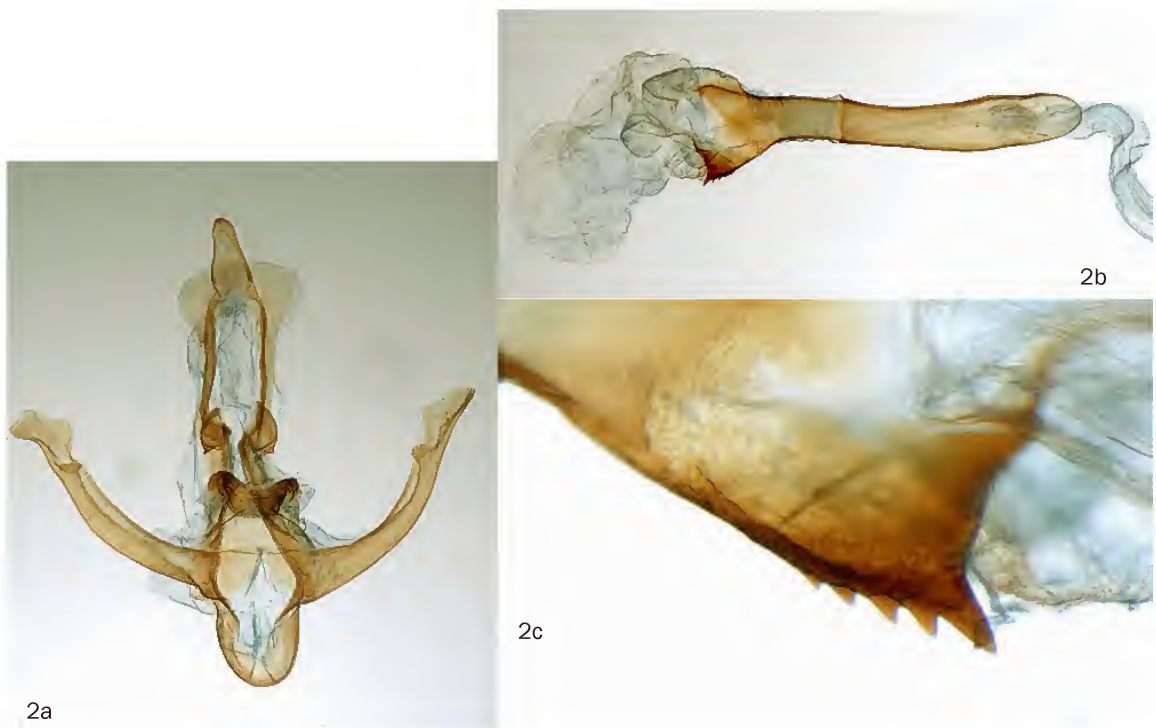
Figures 2a-c. *Spilosoma costata* (Boisduval) male genitalia prep. RV1148. a: habitus genitalia; b: aedeagus; c: carinae.

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Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



Figures 1a-c. *Spilosoma hypsoides* (Rothschild) male genitalia prep. BM3468. a: habitus genitalia; b: aedeagus; c: carinae.



Figures 2a-c. *Spilosoma fraterna* (Rothschild) male genitalia prep. RV1243. a: habitus genitalia; b: aedeagus; c: carinae.

Plate 67

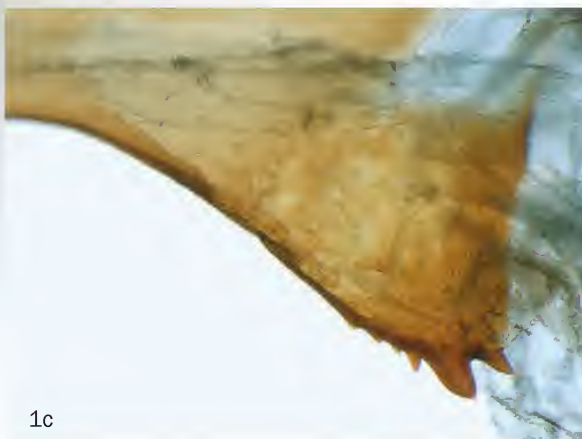
Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



1a



1b



1c

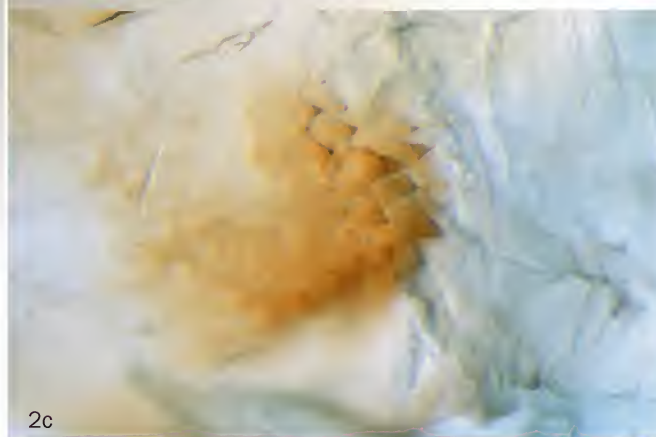
Figures 1a-c. *Spilosoma nana* sp. nov. male genitalia prep. RV1245. a: habitus genitalia; b: aedeagus; c: carinae.



2a



2b



2c

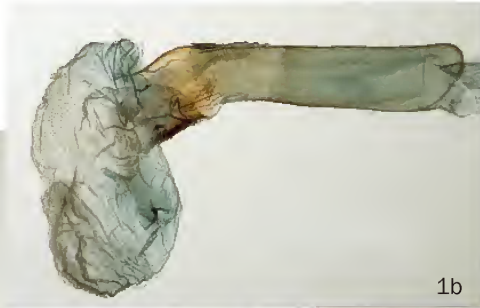
Figures 2a-c. *Spilosoma reticulata* Rothschild male genitalia prep. BM6289. a: habitus genitalia; b: aedeagus; c: carinae.

Plate 68

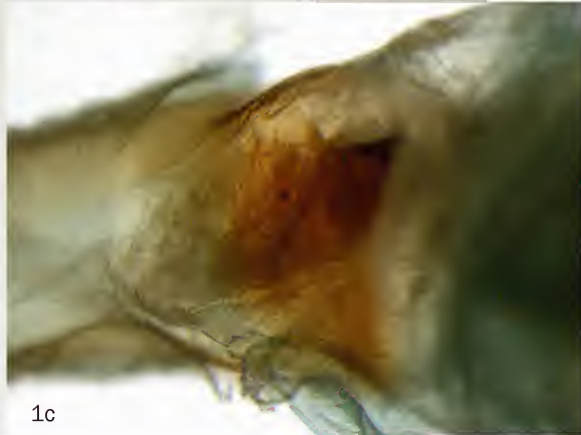
Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



1a

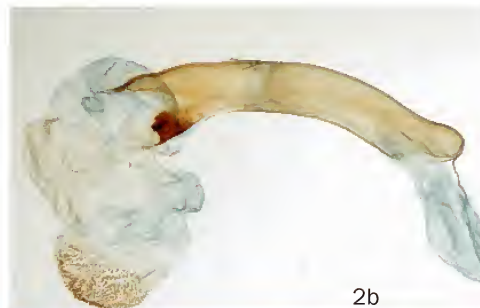


1b



1c

Figures 1a-c. *Spilosoma styx* (Bethune-Baker) male genitalia prep. RV1161. a: habitus genitalia; b: aedeagus; c: carinae.



2b



2a

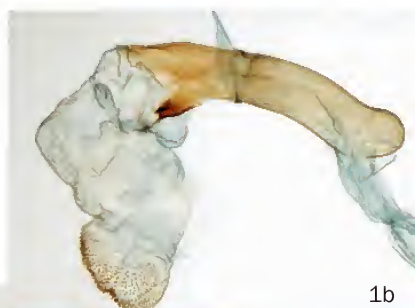


2c

Figures 2a-c. *Spilosoma enarotali* sp. nov. male genitalia prep. KSP23026. a: habitus genitalia; b: aedeagus; c: carinae.

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Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



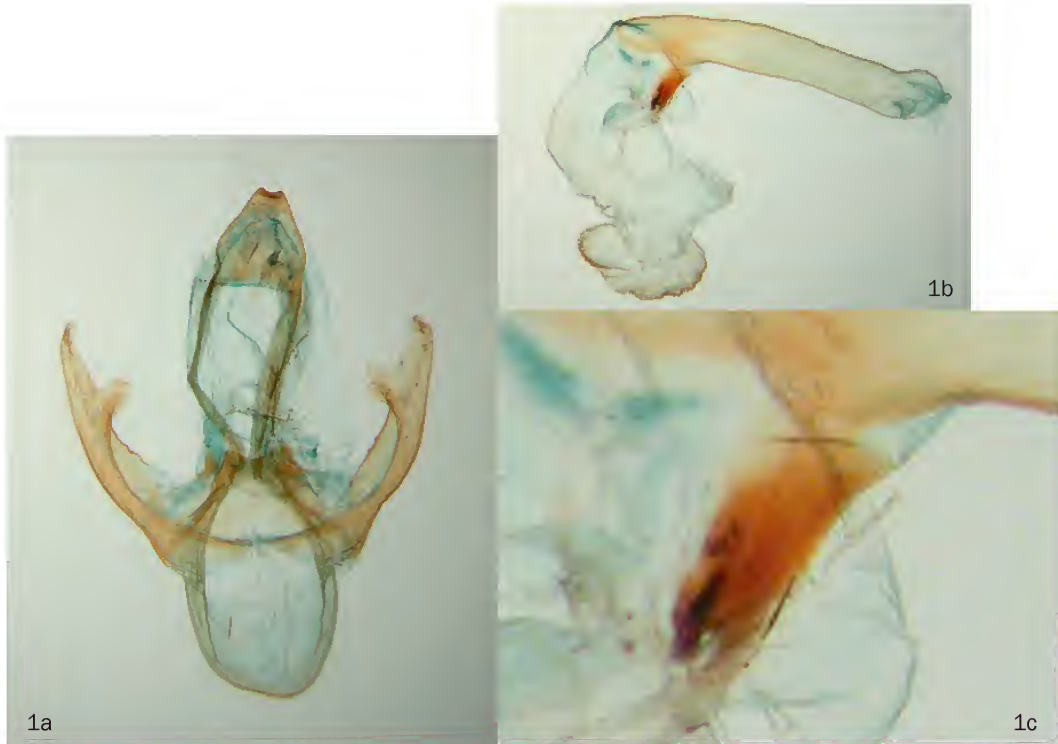
Figures 1a-c. *Spilosoma grandimacula* sp. nov. male genitalia prep. KSP23091. a: habitus genitalia; b: aedeagus; c: carinae.



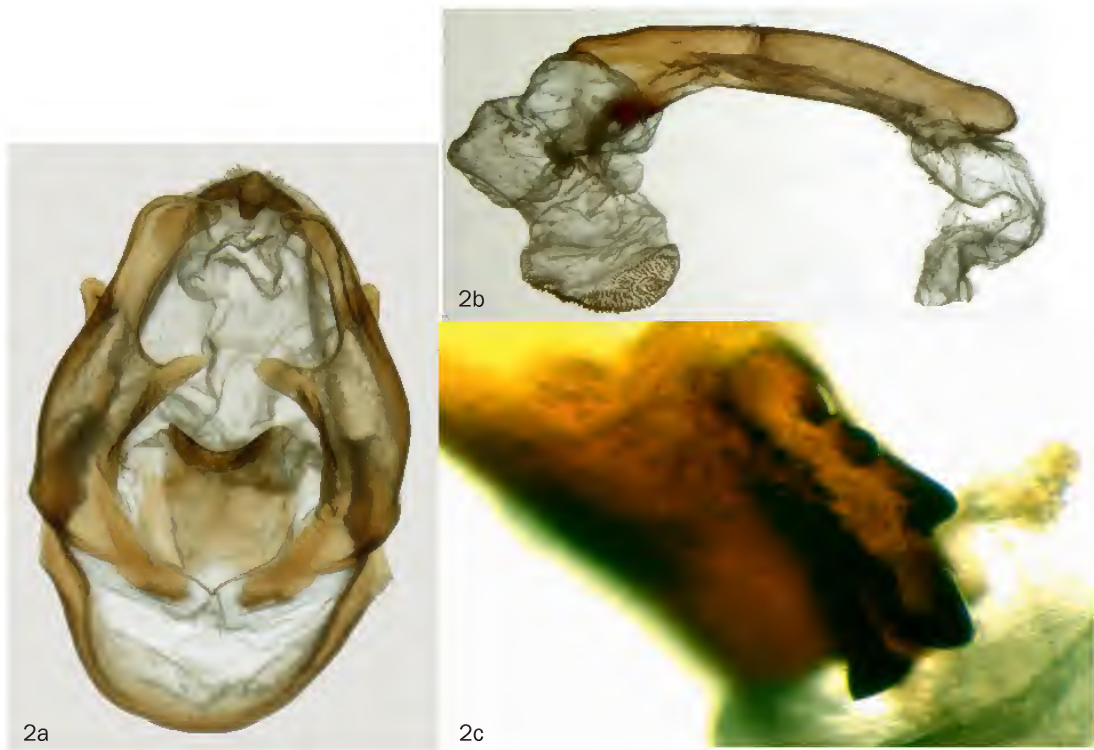
Figures 2a-c. *Spilosoma mastrigti* sp. nov. male genitalia prep. RV1144 & RV1252. a: habitus genitalia (RV1144); b: aedeagus (RV1252); c: carinae (RV1252).

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Figures 1a-c. *Spilosoma novaeguineae* Rothschild male genitalia prep. BM6260. a: habitus genitalia; b: aedeagus; c: carinae.



Figures 2a-c. *Spilosoma persimilis* (Rothschild) male genitalia prep. RV1139. a: habitus genitalia; b: aedeagus; c: carinae.

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Vos R. DE & SUHARTAWAN D.: The *Spilosoma* group of species from New Guinea and adjacent islands (Lepidoptera ...



1a



1b



1c

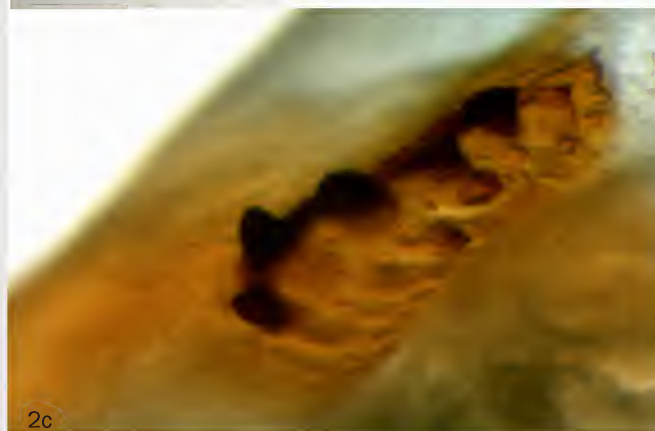
Figures 1a-c. *Spilosoma transversa* sp. nov. male genitalia prep. RV1250. a: habitus genitalia; b: aedeagus; c: carinae.



2a



2b

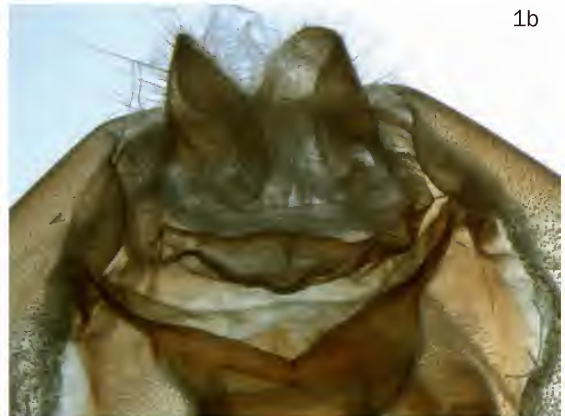


2c

Figures 2a-c. *Spilosoma turbida* (Butler) male genitalia prep. RV1130. a: habitus genitalia; b: aedeagus; c: carinae.

Plate 72

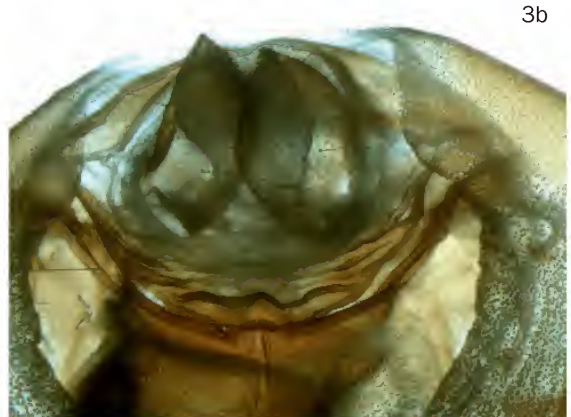
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Figures 1a-b. *Spilosoma alberti* (Rothschild) female genitalia prep. BM6302. a: habitus genitalia; b: lamella vaginalis.



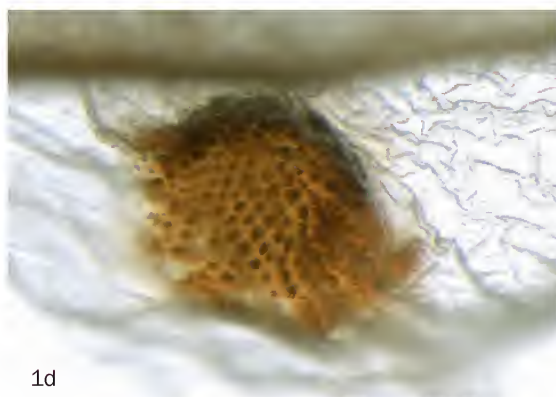
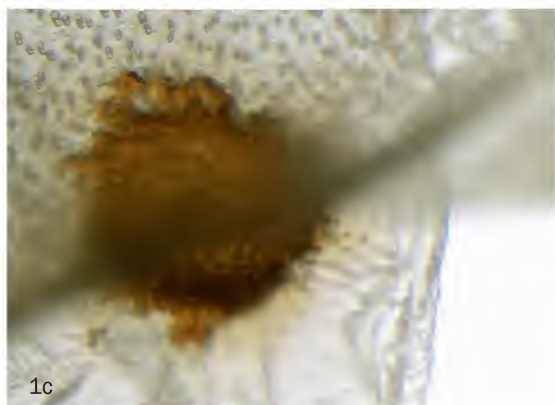
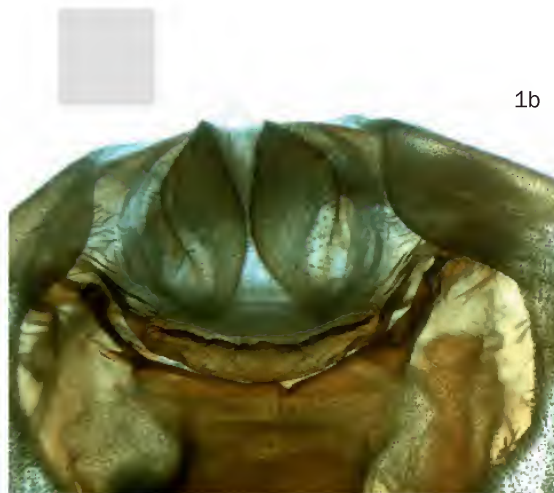
Figures 2a-b. *Spilosoma biagi* (Bethune-Baker) female genitalia prep. RV1324. a: habitus genitalia; b: lamella vaginalis.



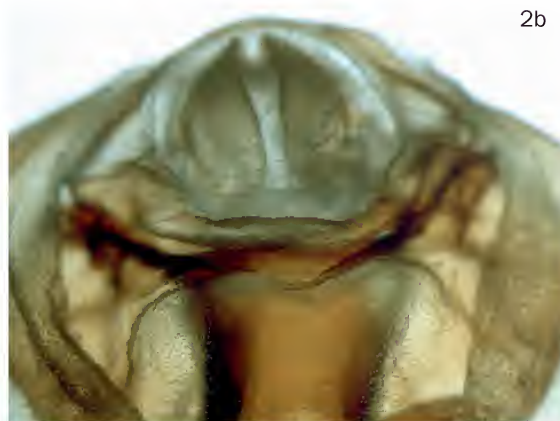
Figures 3a-b. *Spilosoma dinawa* (Bethune-Baker) female genitalia prep. BM6303. a: habitus genitalia; b: lamella vaginalis.

Plate 73

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Figures 1a-d. *Spilosoma kebea* (Bethune-Baker) female genitalia prep. BM6301. a: habitus genitalia; b: lamella vaginalis; c: left signum; d: right signum.



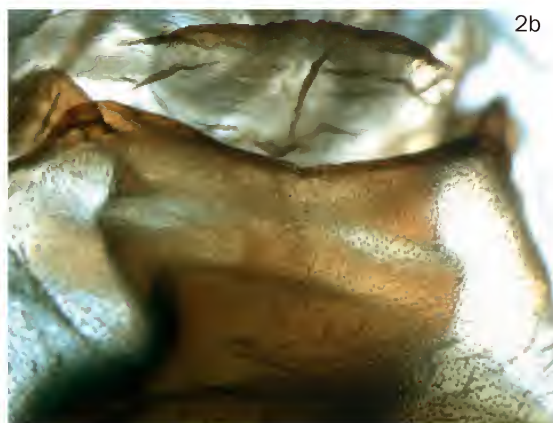
Figures 2a-b. *Spilosoma owgarra* (Bethune-Baker) female genitalia prep. RV1325. a: habitus genitalia; b: lamella vaginalis.

Plate 74

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Figures 1a-b. *Spilosoma pratti* (Bethune-Baker) female genitalia prep. BM6297. a: habitus genitalia; b: lamella vaginalis.



Figures 2a-c. *Spilosoma vulgaris* sp. nov. female genitalia prep. RV1326. a: habitus genitalia; b: lamella vaginalis; c: signa.

Plate 75

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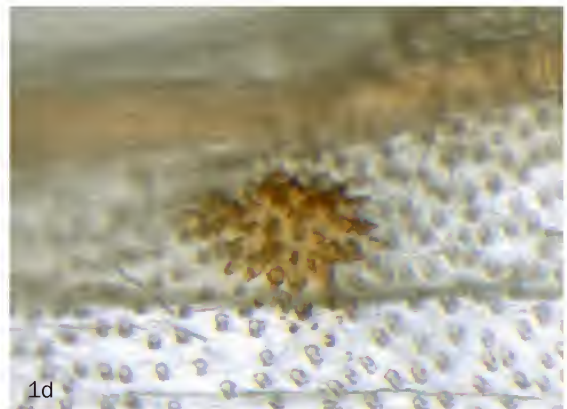
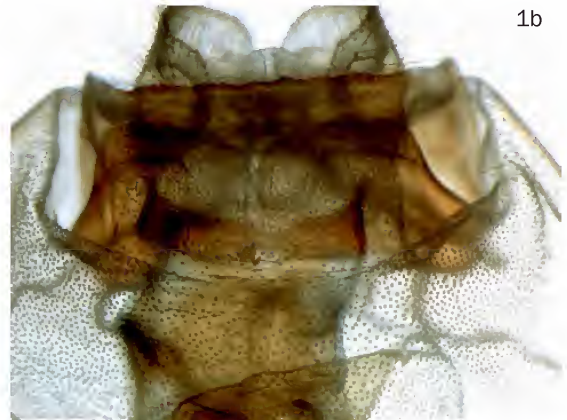
Figures 1a-b. *Spilosoma arctichroa* (Druce) female genitalia prep. BM6300. a: habitus genitalia; b: lamella vaginalis.



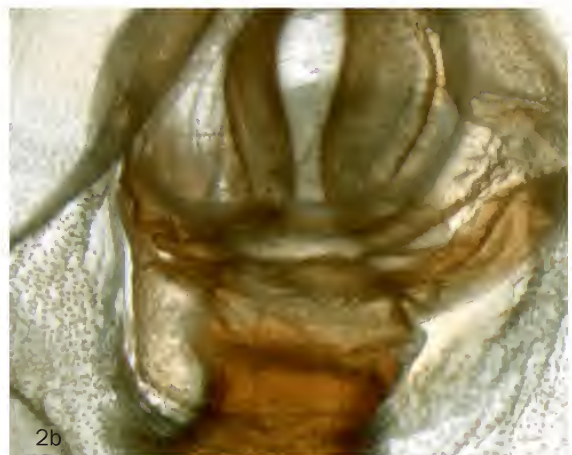
Figures 2a-b. *Spilosoma holobrunnea* (Joicey et Talbot) female genitalia prep. BM3409. a: habitus genitalia; b: antrum and bursa copulatrix.

Plate 76

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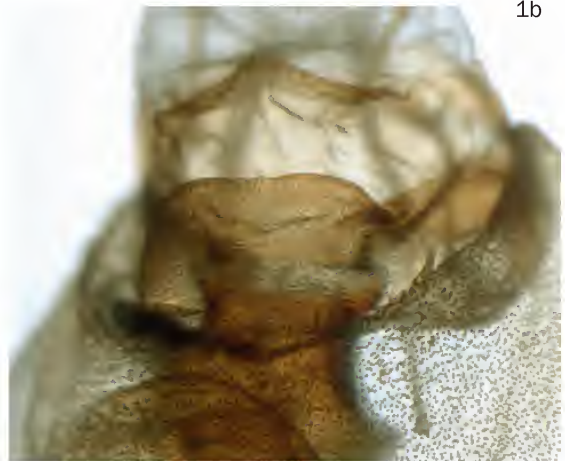
Figures 1a-d. *Spilosoma costata* (Boisduval) female genitalia prep. BM6299. a: habitus genitalia; b: lamella vaginalis; c: left signum; d: right signum.



Figures 2a-b. *Spilosoma enarotali* sp. nov. female genitalia prep. RV1328. a: habitus genitalia; b: lamella vaginalis.

Plate 77

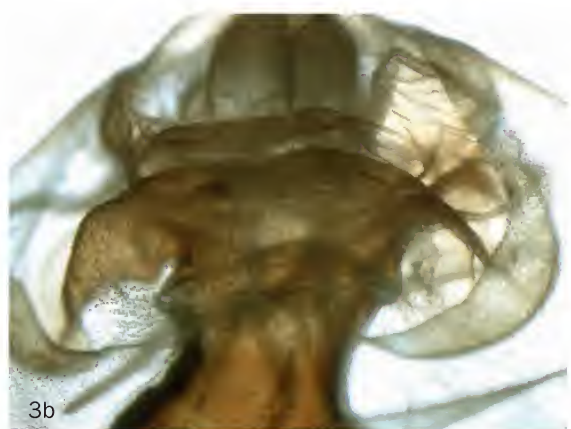
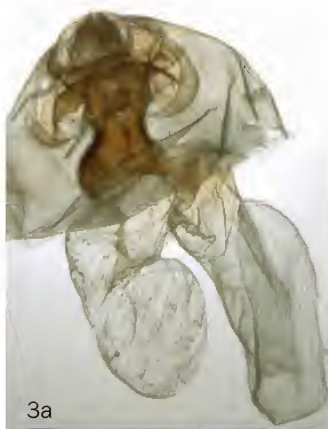
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Figures 1a-b. *Spilosoma mastigti* sp. nov. female genitalia prep. RV1329. a: habitus genitalia; b: lamella vaginalis.



Figures 2a-b. *Spilosoma persimilis* (Rothschild) female genitalia prep. RV1340. a: habitus genitalia; b: lamella vaginalis.



Figures 3a-b. *Spilosoma turbida* (Butler) female genitalia prep. RV1327. a: habitus genitalia; b: lamella vaginalis.